CONSUMER RESISTANCE TO MOBILE BANKING SERVICES: AN EMPIRICAL STUDY AMONG BABY BOOMERS IN MALAYSIA URBAN AREAS

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DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

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DEDICATION

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LIST OF ABBREVIATIONS

MBS	Mobile Banking Services
IRT	Innovation Resistance Theory
UB	Usage Barrier
VB	Value Barrier
RB	Risk Barrier
TB	Tradition Barrier
IB	Image Barrier
FCB	Financial Cost Barrier
ITU	Intention to Use

PREFACE

Nowadays mobile banking has become more popular throughout the world. It generally refers to consumers' execution of financial services using mobile communication techniques in conjunction with mobile devices. Although mobile banking could provide many benefits to the consumers, the penetration rate of mobile banking services is low in Malaysia. Hence, the issue of why people resist mobile banking services would be an interesting topic for an in depth exploration. Since baby boomers are treated as an important segment in terms of loans, savings, and investments compared, this study would investigate the resistance factors affecting baby boomers to adopt mobile banking services.

ABSTRACT

Although there is a rapid growth of mobile banking usage in some foreign countries, the penetration rate of mobile banking services is low in Malaysia. Thus, this study aims to investigate the barriers causing the baby boomers' resistance to mobile banking services in Malaysia urban areas. Based on the innovation resistance model and valence framework, this study adapted and investigated the resistance factors including usage, value, risk, image, and financial cost barriers. Data collected from 320 baby boomers in Klang Valley, Johor Bahru and Penang through purposive sampling technique were tested against the proposed model, using the Pearson's correlation analysis and multiple linear regression analysis. The results indicate that the intention to use mobile banking services among baby boomers is significantly affected by all barriers, except for financial cost barrier. It is also highlighted that the image and risk barrier are the most significant influence to baby boomer's intention to use mobile banking services. The findings of this study enable the other researchers to have a better understanding of the barriers to mobile banking services adoption. There are also few implications for both management and scholars in overcoming and studying baby boomer's resistance to mobile banking services.

CHAPTER 1: INTRODUCTION

1.0 Introduction

This chapter presents a brief discussion on the background and problem statement of this study, determines the research questions and objectives, and explains the significance of this study.

1.1 Background of the Study

Nowadays, mobile banking has become more popular as the number of mobile phone usage is increasing (Hanafizadeh, Behboudi, Koshksaray, & Tabar, 2012). It is the consumers' execution of financial services, using mobile communication techniques in conjunction with mobile devices (Pousttchi & Schurig, 2004). Mobile banking services (MBS) may include latest transactions and account balances enquiries, funds transfer between accounts, sales and purchases of stock exchange, and request of portfolio and price information (Laukkanen & Kiviniemi, 2010).

As consumer can enjoy the financial services in many places and time, mobile banking had benefited consumers in terms of ubiquity coverage, interactivity and flexibility (Cheah, Teo, Sim, Oon, & Tan, 2011). However, Bank Negara Malaysia (2012) had reported that there are 2,446,200 mobile banking services' subscribers in Malaysia, with penetration rate of only 8.3 percent among the Malaysia population. While, Malaysian Communications and Multimedia

Commission (2012a) has reported that Malaysia's mobile phone penetration rate is as high as 141.6 % of the Malaysia population. If we compare the mobile banking services' subscribers to the mobile phone penetration rate, it is relatively low. The above comparison shows that there is further understanding needs on causal factors in the resistance of MBS adoption in the future (Laukkanen & Kiviniemi, 2010). According to Reinders (2010), consumer resistance is defined as an aversive motivational state, triggered when one attempts to regain the perceived threatened freedom.

Baby boomers refers to person who born between 1946 and 1964 (Gilliam, Chatterjee, & Zhu, 2010). They are characterized as individuals who are slow to accept new technology, and will struggle to understand the ways to use it when they do accept (McLeod, 2009). While, baby boomers are group of having high financial power (Lim, Yap, & Lee, 2011), and constitute of 12% to 15% out of the total population in Malaysia (Department of Statistics Malaysia, 2012). Due to their pre-dominant population and income levels, this group of consumer is one of the popular targeted segments (Boone & Kurtz, 2012). Given this background, it is important to understand the intention of baby boomers in MBS adoption.

As defined in Department of Statistics Malaysia (2013), urban areas are gazette areas with their adjoining built-up areas which had a combined population of 10,000 or more, and at least 60% of their population (aged 15 years and above) engaged in non-agricultural activities. Therefore, this study would target at the baby boomers in three Malaysia urban areas with highest rate of mobile phone subscribers among Malaysian, including Klang Valley (Kuala Lumpur/ Selangor), Johor Bahru and Penang (Demographia, 2013; Malaysian Communications and Multimedia Commission, 2012b; Wong & Hiew, 2005).

For the framework, this study will use Innovation Resistance Theory (IRT) founded by Ram and Sheth (1989) to identify the factors affecting resistance to MBS among baby boomers in Malaysia urban areas. The inhibiting factors will be mainly summarized into functional and psychological barriers.

1.2 Problem Statement

Despite the rapid growth of mobile banking usage in some foreign countries (Khraim, Shoubaki, & Khraim, 2011), mobile banking is still at the early stage in Malaysia (Cheah et al., 2011). This statement is also agreed by Daud, Kassim, Wan Mohd Said, and Noor (2011) that MBS are unnoticed by the consumers although it has been launched in Malaysia for almost seven years. According to the statistics shown by Malaysian Communications and Multimedia Commission (2012a), the penetration rate of Malaysian using mobile phones (141.6%) is much more than the penetration rate of using MBS (8.3%) among Malaysia population. Bank Negara Malaysia (2010) had even reported that mobile banking transactions were reduced both in volume and value even though there is an increase in number of mobile banking subscribers in 2010. All these have implied that there are some causal factors inhibiting the consumers to utilise MBS. Furthermore, efficient services provided by banking industry, which can be contributed by moving from traditional distributional channel to electronic distributional channel such as MBS, are important for the economic developments in Malaysia (Daud et al., 2011). Therefore, such phenomenon is worth to further explore and investigate.

There were several past studies had used Theory of Planned Behavior (TPB) to explain the consumers' intention to use MBS, which focuses on the success of innovation (MBS) and reasons to adopt the services, such as the researches of Aboelmaged (2010), Luarn and Lin (2005), and Shih and Fang (2004). Nonetheless, these studies did not explore innovation resistance which mainly focuses on factors inhibiting consumers to adopt MBS (Laukkanen, Sinkkonen, Kivijarvi, & Laukkanen, 2007b). While, Elbadrawy and Aziz (2011) and Laukkanen et al. (2007b) had investigated the barriers to mobile banking among consumers in Finland and Egypt by using IRT. As these researches were just done in both of these countries, the finding may not fully applicable in Malaysia context. Thus, the research framework has to be adapted in order to be used in Malaysia (Lu, Yang, Chao, & Cao, 2011).

In studying the intention of using MBS, the number and financial power of baby boomers had made them as one of the popular targeted segments (Boone & Kurtz, 2012). In addition, Loo (2010) has also highlighted that they are one of the market segments of having higher value in terms of loans, savings, and investments compared with other generation categories. Nevertheless, many researchers are mainly interested in studying technological innovation such as MBS and E-commerce among relative young consumers who are aged from 20 to 45 years old (Elbadrawy & Aziz, 2011; Lian, Liu, & Liu, 2012; Lian & Yen 2013; Luarn & Lin, 2005; Yu, 2012). Although there is a study of Lim et al. (2011) which has targeted at baby boomers, they were studying E-commerce using TPB. Therefore, there is a need to more deeply understand the resistance factors affecting baby boomers' intention to adopt MBS in Malaysia urban areas by using IRT.

1.3 Research Questions and Objectives

1.3.1 General Question

What are the resistance factors affecting MBS adoption among baby boomers in Malaysia urban areas?

1.3.2 Specific Questions

The specific questions in this study are:

1. Is there any relationship between usage barrier (UB) and MBS adoption among baby boomers in Malaysia urban areas?
2. Is there any relationship between value barrier (VB) and MBS adoption among baby boomers in Malaysia urban areas?
3. Is there any relationship between risk barrier (RB) and MBS adoption among baby boomers in Malaysia urban areas?
4. Is there any relationship between tradition barrier (TB) and MBS adoption among baby boomers in Malaysia urban areas?
5. Is there any relationship between image barrier (IB) and MBS adoption among baby boomers in Malaysia urban areas?
6. Is there any relationship between financial cost barrier (FCB) and MBS adoption among baby boomers in Malaysia urban areas?

1.3.3 General Objective

The general objective of this study is to investigate the resistance factors affecting MBS adoption among baby boomers in Malaysia urban areas.

1.3.4 Specific Objectives

The objectives of this study are:

1. To investigate the relationship between UB and MBS adoption among baby boomers in Malaysia urban areas.
2. To examine the relationship between VB and MBS adoption among baby boomers in Malaysia urban areas.
3. To describe the relationship between RB and MBS adoption among baby boomers in Malaysia urban areas.
4. To determine the relationship between TB and MBS adoption among baby boomers in Malaysia urban areas.
5. To analyse the relationship between IB and MBS adoption among baby boomers in Malaysia urban areas.
6. To investigate the relationship between FCB and MBS adoption among baby boomers in Malaysia urban areas.

1.4 Significance of the Study

As there is low MBS adoption rate among Malaysia population, resistance factors affecting the adoption of MBS is an important information for banks to improve the MBS adoption rates. Meanwhile, baby boomers are the group of having high financial power and considered as an important market segment for banking industry.Thus, technological innovation resistance studies focused on both MBS and baby boomers in Malaysia are essential. The findings of this study allow local bankers to have a better understanding of the relationship between all barriers (usage, value, risk, tradition, image, and financial cost) and baby boomer's intention to use MBS in Malaysia's context. Hence, they are able to enhance the quality of their services to attract more baby boomers as their users and subsequently increase the MBS usage of Malaysian. Those banks which intend to launch their MBS could also formulate a better business plan by referring to this study.

Although many past studies had attempted to investigate the intention to use innovative technology by extending and modifying Theory of Planned Behavior, there is a need to understand the reasons why customers resist the innovation rather than why they adopt it (Sheth, 1981) since consumer resistance is a significant cause of market failure for innovations (Ram & Sheth, 1989). Hence, this study intends to further explore the major barriers to MBS by adapting all five elements of IRT and one additional factor, FCB which has always been reported as a significant barrier to innovation adoption (Luarn & Lin, 2005; Yang, Cao, Mao, Zhang, & Luo, 2011; Yu, 2012). As such, the findings of this study could be used as a reference for future researchers who are interested in studying similar

topic. For instance, they might conduct a better research after overcoming the limitations in this study.

1.5 Outline of the Study

Chapter one has delivered the overview of this study which consists of the background, purpose, and significance of the study. In chapter two, past studies related to the resistance factors would be reviewed to propose a conceptual framework and develop the hypotheses. Chapter three would then provide an overview of research methodology being used to conduct the study. While, chapter four would present and illustrate the results of data analysis conducted. Last but not least, chapter five would discuss the major findings, implications, limitations and recommendations in this study.

1.6 Conclusion

In conclusion, this chapter studies the background of MBS and baby boomers in Malaysia. After determining the problems statement in this study, this study aims to ascertain the barriers causing the resistance to MBS among the baby boomers in Malaysia urban areas and therefore contribute to the bankers and other researchers. Chapter two would provide the relevant literature review.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter presents the relevant literature review in order to show the possible outcomes for each barrier influencing the intention to use MBS among baby boomers in Malaysia urban areas. Apart from that, proposed conceptual framework is built and propositions are developed to examine the association between each barrier and intention to use.

2.1 Innovation Resistance Theory

Laukkanen, Sinkkonen, Kivijärvi, and Laukkanen (2007a) had defined innovation resistance as preference for subsistent, conversant products and behaviors over the new one. Although prior studies often mixed the concepts of rejection and resistance, resistance is only a normal consumer response to an innovation (Ram & Sheth, 1989), and it may occur before or during the adoption stage (Kuisma, Laukkanen, & Hiltunen, 2007).

Sheth (1981) had mentioned the reasons of innovation resistance by focusing on the psychological side. It involved two aspects: habit toward an existing practice or behavior, and perceived risk associated with innovation adoption. Ram and Sheth (1989) had further explained it and developed the IRT.

According to Ram and Sheth (1989), consumers may resist innovation when innovation brings changes from a satisfactory status quo and/or conflicts with their belief structure. Hence, they identified and converted these two reasons into functional and psychological barriers. Functional barriers are more likely to occur when there are significant changes perceived by consumers from the adoption of innovation, including usage, value and risk barriers. While, psychological barriers mainly arise when the innovation conflicts with the consumers' prior beliefs, including tradition and image barriers. Table 2.1 shows the definition of all five barriers in IRT.

IRT has been used in various researches about technological innovations, especially Internet banking (Kuisma et al., 2007; Laukkanen et al., 2007b; Laukkanen, Sinkkonen, & Laukkanen, 2008) and E-commerce (Lian et al., 2012; Lian & Yen, 2013). However, since many researchers found that FCB had significant negative effect on innovation adoption (Luarn & Lin, 2005; Yang et al., 2011; Yu, 2012), this study would intend to adapt all elements (UB, VB, RB, TB and IB) from IRT and FCB to identify the resistance factors affecting baby boomers' intention to use MBS in Malaysia urban areas.

Table 2.1: Definition of Five Barriers in Innovation Resistance Theory

Functional Barriers	
Usage Barrier	Incompatibility with existing workflows, practices, or habits
Value Barrier	Exists when innovation is unable to provide a strong performance-to-price value compared with the product substitutes
Risk Barrier	Degree of uncertainty and potential side effects that cannot be expected, including physical, economic, functional and social risks
Psychological Barriers	
Tradition Barrier	The cultural change created for the customer by an innovation
Image Barrier	A perceptual problem that arises out of stereotyped thinking and makes life difficult for the innovation

Source: Ram and Sheth (1989)

2.2 Review of the Prior Empirical Studies

2.2.1 Intention to Use

In this study, intention to use refers to the degree of intention of an individual to use MBS (Lian & Yen, 2013).

Although the goal of businesses is to increase customers' adoption of their services rather than the intention to adopt (Yu, 2012), an objective

measurement of the extent to which an individual engages in a behavior is not always easy or practical to obtain it (Vijayasarathy, 2004). Individual behavior can be predicted and is influenced by individual intention, such as technology usage (Yu, 2012). Therefore, the individual intention could be viewed as a practical way to measure actual use in this study (Vijayasarathy, 2004; Teo, Wong & Chai, 2008).

2.2.2 Usage Barrier

UB will arise when the innovation is not compatible with consumer's existing workflow, practices, or habits. (Ram & Sheth, 1989)

Kuisma et al. (2007), Laukkanen et al. (2007b), and Lian et al. (2012) had conducted studies to examine the customers' resistance toward mobile banking, Internet banking and online shopping respectively. These studies showed that there are significant relationships between UB and consumers' resistance.

Laukkanen et al. (2007b) applied self-selection sampling and gained 1,525 valid responses from the users of Scandinavian bank's online banking services. Based on their findings, UB served as a main source of consumer resistance to mobile banking adoption among the mature customers.

Kuisma et al. (2007) interviewed 30 customers from 20 Finnish banks by using the mean-end approach and the laddering interviewing technique. They pointed out that UB is significantly perceived by respondents as

Internet banking would be not suitable for them if they had been using ATM for their payment transactions.

Lian et al. (2012) collected 178 usable questionnaires from the college students in Taiwan who majored in information system related departments by using simple random sampling technique. They found out that different types of products would have a significant moderation effect between UB and the intention to use online-shopping.

2.2.3 Value Barrier

VB can be defined as the performance value of an innovation compared with its substitutes (Ram & Sheth, 1989).

Laukkanen et al. (2007b) had carried out a study to examine the innovation resistance among mature consumers toward mobile banking. It was conducted by using self-selection sampling and gained 1,525 valid responses from the users of Scandinavian bank's online banking services. The result showed that VB was the most intense barrier that significantly influenced the mature customers to resist mobile banking.

The research purpose of Laukkanen et al. (2007a) was to ascertain the reasons why the Finnish bank consumers did not intend to pay their bills over the Internet. Laukkanen et al. (2007a) received 390 valid questionnaires from customers of a large bank in Finland by using nationwide random sampling and conducting a postal survey. They indicated that VB would significantly affect the intention of consumer to

use the service but it is influenced in low intense (Laukkanen et al., 2007a).

Moreover, Antioco and Kleijnen (2010) had done a study to examine the barriers in the consumer adoption process of technological innovations under different contingencies. Antioco & Klejinen (2009) collected 228 usable questionnaires, which 106 for presence of content situation and 123 for lack of content situation, from Master's students by using survey research method. From the results they generated, they found that VB are negatively related to the adoption of technological innovvations in both lack and presence of content situation (Antioco & Klejinen, 2009).

Aslam, Khan, Tanveer, and Amber. (2011), who aimed to identify the perceived barriers in adoption of Internet banking among the bank customers who are active Internet users living in non-metropolitan areas of Pakistan, had applied convenience sampling technique to collect data from a sample of 520 customers by visiting various branches of 10 chosen banks (Aslam et al., 2011). The research showed that the low perceived value would significantly prevent potential users towards the adoption of new technology (Aslam et al., 2011).

2.2.4 Risk Barrier

Consumers will not adopt an innovation when there is a risk unless they have learned it (Ram & Sheth, 1989). Ram and Sheth (1989) have identified four types of risks, including (a) physical risk, which is harm to a person or property; (b) economic risk, which is the cost of making

wrong decision to adopt an innovation; (c) functional risk, which related to bad ability and performance of the innovation; and (d) social risk, which is social ostracism and fear of being ridiculed by others. Zhang, Zhu, & Liu (2012) highlighted several possible risks that may be perceived by consumers, such as fraud, product quality, unjustifiable delay in product delivery, and other illegal activities.

The study of Shin (2009) attempted to validate a comprehensive model of consumer acceptance of mobile payment. 296 usable responses were collected in the form of web-based questionnaire and were analysed using structural equation modeling (Shin, 2009). The findings indicated that perceived security was the most important determinant of user intention to use mobile wallet services, a new application of mobile payment (Shin, 2009).

Luo, Li, Zhang, and Shim (2010) had conducted a research which aimed to indicate the factors associated with the formation of behaviors related to acceptance of MBS. The 122 usable responses collected from undergraduate student volunteers at an Eastern U.S. university were analysed using Partial Least Squares (Luo et al., 2010). The research revealed that the perceived risk is an intense factor which had significantly reduced the behavioral intention of potential users to adopt MBS (Luo et al., 2010).

Peng, Xu, and Liu (2011) had investigated the drivers and barriers to the acceptance of mobile payment in China by collecting 186 questionnaires from university students. Their findings demonstrated that perceived risk

had significant negative effect on mobile payment adoption by consumers (Peng et al., 2011).

While, Lu et al. (2011), who did a study on trust transfer process and intention to use mobile payment services, found that perceived risk negatively affected the acceptance of mobile payment. 961 valid responses were received from internet users by conducting web-based survey and Partial Least Squares approach was used to test the data (Lu et al., 2011). The research reported that consumers' perception of risk significantly decreased their intention to use mobile payment services (Lu et al., 2011).

Munusamy, Annamalah, and Chelliah (2012) had conducted study among Malaysia banking customers by distributing questionnaires to the Internet banking users of selective banks in Malaysia. The results of their study concluded that there was a significant negative relationship between perceived risk and Internet banking usage among Malaysia consumers (Munusamy et al., 2012).

2.2.5 Tradition Barrier

TB refers to the conflict between changes of innovation and users' traditional culture (Lian & Yen, 2013), and also the significant effects on users' daily routines (Elbadrawy, Aziz, & Hamza, 2012; Laukkanen et al., 2007a).

Previous studies had examined the reasons to refuse and resist online shopping (Lian & Yen, 2013), Internet banking (Laukkanen et al., 2008), and mobile banking (Elbadrawy et al., 2012).

Laukkanen et al. (2008) collected 390 usable questionnaires from Finnish bank's customers by conducting a postal survey. The findings indicated that TB was one of the strongest barriers to Internet banking adoption among opponents and rejectors (Laukkanen et al., 2008).

Besides, Elbadrawy et al. (2012) had collected 229 questionnaires by using random probability sampling technique and also interviewed banks in Egypt. Their research showed that TB could be perceived as one of the highest barriers to mobile banking adoption (Badrawy et al., 2012).

Lian and Yen (2013) collected 178 valid questionnaires from Small and Medium Enterprise of the cosmetic industry in Taiwan. The results highlighted that TB was one of the major barriers for people who refuse to shop experience goods online (Lian & Yen, 2013).

2.2.6 Image Barrier

IB refers to the negative thoughts of individuals toward technology tools (Gold, 1981) and perceived complication of use (Elbadrawy et al., 2012). Lian and Yen (2013) explained that IB consists of negative impression about the original country, industry and brand through innovation of a product.

Several studies had been conducted to identify the determinants of resistance to innovation (Kleijinen, Lee, & Wetzels, 2009), online shopping (Lian et al., 2012), Internet banking (Laukkanen et al., 2007a) and MBS (Elbadrawy & Aziz, 2011).

Laukkanen et al. (2007a) collected and analysed 390 valid questionnaires from Finnish banks' customers by conducting a postal survey as well as using qualitative study method. They found that IB was the most intense barrier to Internet banking adoption among the customers not intending to use the services, where they perceived that the image of new technology in general and Internet banking service in particular is negative (Laukkanen et al., 2007a).

Meanwhile, Elbadrawy and Aziz (2011) collected 380 usable self-administered questionnaires from Alexandria and Cairo's consumers. The findings showed that IB was being the weakest barrier to the mobile banking adoption among the postponers, opponents and rejectors (Elbadrawy & Aziz, 2011).

Lian et al. (2012) had applied regression analysis for 178 valid questionnaires collected from college students studying in Information System related departments in Taiwan. The result of their research demonstrated that IB has a significant negative relationship with the user's intention to adopt online shopping (Lian et al., 2012).

2.2.7 Financial Cost Barrier

Perceived financial cost is the monetary expenses incurred when adopting an innovation (Luarn & Lin, 2005), including costs of mobile equipment, access costs and transaction costs (Lu et al., 2011).

Luarn and Lin (2005) carried out a research to understand the behavioral intention to use mobile banking. 180 questionnaires were collected and tested by using structural equation modeling approach (Luarn & Lin, 2005). They found that perceived financial cost was a significant determinant of behavioral intention to use mobile banking (Luarn & Lin, 2005).

Kuo and Yen (2009) had also conducted a study to further understand consumer's behavioral intention to use 3G mobile value-added services. Structural equation model was employed to analysed 269 valid responses collected in the form of questionnaire (Kuo & Yen, 2009). Eventually, they found that perceived cost has a significantly negative effect on behavioral intention of using 3G mobile value-added services (Kuo & Yen, 2009).

In addition, Yang et al. (2011) had examined the determinants of behavioral intention to use mobile payment by collecting 157 web-based questionnaires. PLS approach was used to examine the data. The findings indicated that perceived fee has a significant negative impact on consumers' intention to sue the new technology since mobile payment is a fairly new technology in China (Yang et al., 2011).

Other than that, Yu (2012) had studied the factors to adopt mobile banking. 441 questionnaires had been collected and partial least squares (PLS) regression was conducted to examine the data. In the research, perceived financial cost was found to significantly and negatively affect the consumer intention to adopt mobile banking (Yu, 2012). By the way, It also highlighted that the effect of perceived financial cost was notably insignificant to the respondents aged below 30 or over 50 (Yu, 2012).

However, Lewis, Palmer and Moll (2010) did a research study on the barriers towards MBS adoption among young people in Germany. They received 155 valid responses and used structure equation modelling (SEM) approach to tests the hypothesis (Lewis et al., 2010). Finally, they found out that perceived costs had insignificant relationship with the intention to adopt MBS (Lewis et al., 2010).

2.2.8 Deficiencies of the Prior Empirical Studies

The researches reviewed above had mainly been conducted in certain countries, such as Finland (Kuisma et al., 2007; Laukkannen et al., 2007a; Laukkannen et al., 2007b; Laukkannen et al., 2008), China (Lu et al., 2011; Peng et al., 2011; Yang et al., 2011), and Taiwan (Lian et al., 2012; Lian & Yen, 2013; Luarn & Lin, 2005; Yu, 2012;).

There is only one past studies conducted in Malaysia, whereas the researchers only targeted on Internet banking users of selective Malaysia banks (Munusamy et al., 2012).

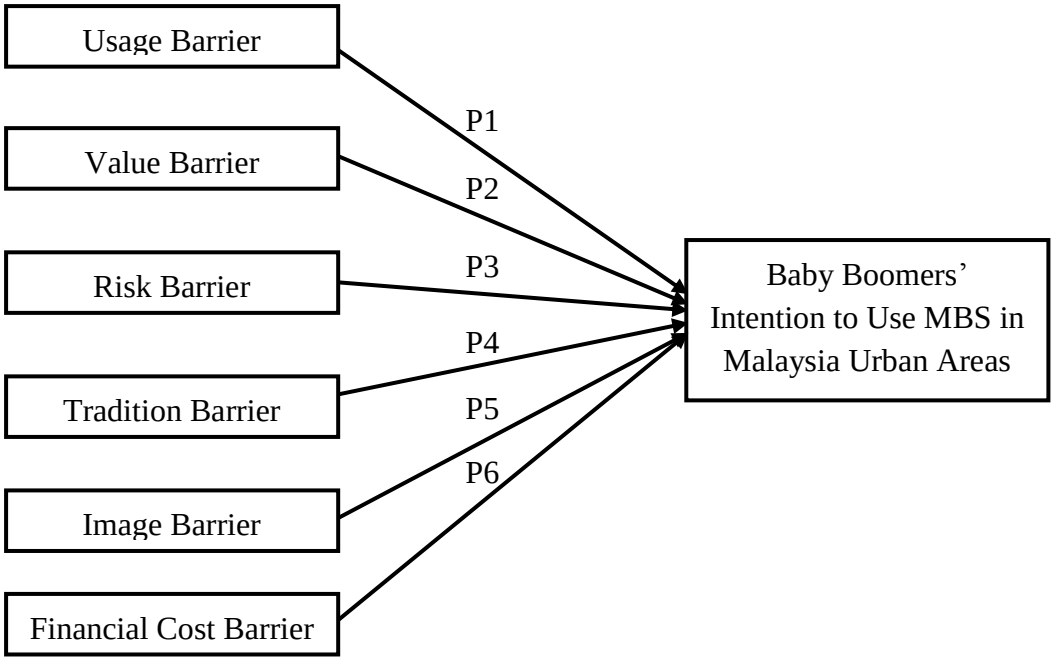
Besides that, the researchers were mainly focusing on Internet users and banking customers. They ignored the non-Internet users, baby boomers and computer illiterate segments (Lu et al., 2011). They also did not focus on certain specific target respondents (Laukkanen et al., 2008)

Moreover, most of the past studies' research areas were focusing on Internet banking (Aslam et al., 2011; Kuisma et al., 2007; Laukkanen et al., 2007a; Laukkanen et al., 2008), online shopping (Lian et al., 2012; Lian & Yen, 2013), and mobile payment services (Lu et al., 2011; Peng et al., 2011; Yang et al., 2011).

To overcome the limitations of past studies, our study would focus on investigate the baby boomers' intention to use MBS in urban areas in Malaysia. Questionnaire would also be distributed by self delivery and collection.

2.3 Proposed Conceptual Framework/Research Model

Figure 2.1: Proposed Conceptual Framework of Resistance Factors and Baby Boomers' Intention to Use MBS in Malaysia Urban Areas



Adapted from: IRT (Ram & Sheth, 1989); Valence Framework (Yang et al., 2011)

2.4 Propositions Development

There are six barriers selected as the independent variables, including usage, value, risk, tradition, image and financial cost barriers. To examine whether there are relationships between these barriers and intention to use MBS, the propositions are:

P1: There is a significant relationship between UB and baby boomers' intention to use MBS in Malaysia urban areas.

P2: There is a significant relationship between VB and baby boomers' intention to use MBS in Malaysia urban areas.

P3: There is a significant relationship between RB and baby boomers' intention to use MBS in Malaysia urban areas.

P4: There is a significant relationship between TB and baby boomers' intention to use MBS in Malaysia urban areas.

P5: There is a significant relationship between IB and baby boomers' intention to use MBS in Malaysia urban areas.

P6: There is a significant relationship between FCB and baby boomers' intention to use MBS in Malaysia urban areas.

2.5 Conclusion

Review of past studies which related to this study was provided in this chapter. By adapting all five barriers from IRT and FCB from Valence Framework, the proposed research model and propositions were developed. The overview of research methodology would be provided in the following chapter.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

This chapter aims to describe the research design, data collection methods, population, sample and sampling procedures, variables and measurement, data processing, and data analysis techniques.

3.1 Research Design

This study is a quantitative study to investigate the resistance factors affecting MBS adoption among baby boomers in Malaysia urban areas as it is based on the measurement and quantification of data (Zikmund, Babin, Carr, & Griffin, 2010).

To obtain the quantitative data, self-administered questionnaire will be distributed to the target respondents, who are the baby boomers in Malaysia urban areas. According to Saunders, Lewis, and Thornhill (2009), quantitative data is used to generate numerical data to test a general theory. Survey is the preferred type of data collection procedure for the study as it enables the researchers to collect large amount of data in an economical way (Saunders et al., 2009). In addition, according to Glasow (2005), survey is useful to elicit the information about attitudes that is difficult to obtain from other measurement, and the data collected from survey is subjective. Besides that, by referring to the past studies reviewed, most of the researchers were conducting surveys to collect data.

This study falls under cross-sectional study as it only looks at the intention to use MBS among baby boomers in Malaysia urban areas at one point of time (Saunders et al., 2009; Trochim, 2006). Besides, the unit of analysis for the study is baby boomers from Klang Valley, Johor Bahru and Penang.

3.2 Population, Sample and Sampling Procedures

3.2.1 Target Population

As this study is investigating the barriers to adoption of MBS among the baby boomers in Malaysia, the subject of this research is baby boomers in Malaysia urban areas. According to Department of Statistics Malaysia (2012), there are 12% to 15% of Malaysia population are baby boomers.

3.2.2 Sampling Frame and Sampling Location

Sampling frame is a complete list of all the elements in the population of from which the sample had been drawn (Saunders et al., 2009). This study would not indicate any sampling frame due to inability to obtain the list of baby boomers in targeted urban areas.

This study targeted at the baby boomers in Malaysia urban areas, including Klang Valley (Kuala Lumpur/ Selangor), Johor Bahru and Penang (Wong & Hiew, 2005). These three urban areas are chosen due to their highest number of hand phone users among Malaysian.

(Demographia, 2013; Malaysian Communications and Multimedia Commission, 2012b; Wong & Hiew, 2005).

3.2.3 Sampling Elements

The unit of analysis of this study is baby boomers, who are mobile phone users but not the subscribers of MBS, in the targeted urban areas. Lim et al. (2011) stated that they have high financial power. McLeod (2009) characterized them as individuals who are slow to accept new technology, and will struggle to understand the ways to use it when they do accept. These characteristics make them an attractive group to explore.

3.2.4 Sampling Technique

Sampling is necessary as it is impracticable to survey the entire targeted population due to budget and time constraints (Saunders et al., 2009, p. 212).

There are five types of the non-probability sampling which are quota sampling, purposive sampling, snowball sampling, self-selection sampling, and convenience sampling (Saunders et al, 2009, p.213). Based on the study of Wong and Hiew (2005), purposive sampling under non-probability sampling techniques is suitable to adopt in this study as it involves the choice of subjects who are the most advantageous placed to provide the information required (Sekaran & Bougie, 2010, p. 277). It may limit the generalizability of the findings but it is the only viable sampling method

to gain information from a specific group of people (Sekaran & Bougie, 2010, p. 277; Wong & Hiew, 2005).

3.2.5 Sampling Size

Sampling size is a subset of the population which can represent the whole targeted population (Burns & Bush, 2009, p.366).

Based on the statistics from Department of Statistics Malaysia (2010), the amount of baby boomers in Malaysia urban areas exceeds 1,000,000. According to Wong and Hiew (2005), 384 questionnaires would be sufficient to represent baby boomers in Malaysia urban areas.

3.3 Data Collection Method

3.3.1 Primary Data

Self-administered questionnaire would be distributed to target respondents to collect primary data. The questionnaire would be prepared in English, Chinese and Malay languages for the better understanding of target respondents. The survey was conducted from 8 May to 26 May 2013 in Klang Valley, Johor Bahru and Penang.

3.4 Variables and Measurement

Appendix 3.1 explains the definitions for each variable and Appendix 3.2 shows the sources of variables. There are 25 items for the six barriers and 3 items for ITU being examined to establish the relationships between independent variables and dependent variable. The items were adapted from previous studies and it is modified for this study to fit the context of IRT.

Table 3.1: Measurement of Each Variable

Variables		Measurement	Scale of Measurement
Demographic Profile	Gender	Nominal	
	Year of Birth	Ordinal	
	Race	Nominal	
	Marital Status	Nominal	
	Education Level	Ordinal	
	Income Level	Ordinal	
	Mobile Banking Service (user & non-user)	Nominal	
Independent Variables	Usage Barrier	Interval	5-point Likert Scale
	Value Barrier	Interval	5-point Likert Scale
	Risk Barrier	Interval	5-point Likert Scale
	Tradition Barrier	Interval	5-point Likert Scale
	Image Barrier	Interval	5-point Likert Scale
	Financial Cost Barrier	Interval	5-point Likert Scale
Dependent Variable	Intention to Use	Interval	5-point Likert Scale

Source: Developed for the research

Table 3.1 shows the measurement of each variable contained in the questionnaire. 5-point Likert scale would be employed in this study instead of 7-point Likert scale which employed by previous studies. 5-point Likert scale ranged from "Strongly disagree" (1) to "Strongly agree" (5). According to Dawes (2008), 7-point Likert scale is lengthier. It may confuse and deter the viewers from completing the survey (Maringka, 2012). While, 5-point Likert scale is easier for

the target respondent to view and choose based on the complete list of scale descriptors (Dawes, 2008) and is easy to be used wisely by researcher (Colman, Norris, & Preston, 1997).

3.5 Data Analysis Techniques

3.5.1 Descriptive Analysis

Descriptive analysis is used to describe and explain variables numerically by focusing on two aspects which are the central tendency and dispersion (Saunders et al., 2009). Mean, including all data values in its calculation, and standard deviation, which describes and compares the extent by which values differ from the mean, are the most frequently used measure for central tendency and dispersion respectively (Saunders et al., 2009). Furthermore, pie chart is the most frequently used diagram to emphasise the proportion or share of occurrences (Saunders et al., 2012).

In this study, pie chart would be applied to present the data from section A of questionnaire which is demographic profile of the respondents. While, mean and standard deviation would be analyzed for every item of each variable in the questionnaire, which refer to the section B and section C of questionnaire.

3.5.2 Scale Measurement

Scale measurement is used to verify the data quality and therefore determine the reliability level of the data. In this study, normality test would be carried to ensure the normal distribution of data before other analysis is conducted. Reliability test would be used to measure the reliability of the questionnaires in order to generate reliable results.

3.5.2.1 Normality Test

Normality test is used to test whether the input data are normally distributed, which commonly represented by a bell-shaped normal curve. This study would employ Kolmogorov-Smirnov test to analyse the data since the sample size used is more than 50 subjects (Philips, 2008).

Generally, in Kolmogorov-Smirnov test, if the significance level is more than 0.05, the data is assumed as normally distributed (Philips, 2008). In other words, the data is randomly collected, and therefore it is valid.

3.5.2.2 Reliability Test

Reliability refers to the assessment of the degree of consistency between multiple measurements of a variable (Hair, Black, Babin, & Anderson, 2006). This study would employ Cronbach's alpha, the most generally applied estimate of a multiple-item scale's reliability, to assess the reliability of the constructs (Zikmund et al., 2010). Hair et al. (2009) and

Lu et al., (2011) have mentioned that the commonly agreed upon lower limit for Cronbach's alpha is 0.70. In other words, the constructs are viewed as reliable if their Cronbach's alpha are more than or equal to 0.

3.5.3 Inferential Analysis

Inferential analysis is conducted to generalize characteristics from a sample to a population (Zikmund et al., 2010, p. 413).

3.5.3.1 Pearson's Correlation Analysis

According to Zikmund et al. (2010, p. 559), Pearson's correlation analysis is used to measure the strength of the relationships between two variables. The coefficient (*r*) can range from +1 to -1, indicates a positive or negative correlation respectively. There is no correlation when *r* equals 0. In other words, *r* indicates the proportion of variation in one variable that is influenced by the other (Malhotra & Peterson, 2006, p. 497). The coeffient value should not be greater than 0.90 to avoid multicollinearity problem among independent variables (Hair et al., 2006, p. 227). The following table shows the level of correlation:

Table 3.2 Relationship between Coefficient Value and Correlation

Coefficient (*r*)	Correlation
0.10 to 0.29	Weak
0.30 to 0.49	Medium
0.50 to 1.0	Strong

Source: Wong & Hiew (2005)

Table 3.3 shows the assumptions underlying:

Table 3.3 Assumptions underlying Pearson's Correlation Analysis

1. The variables must be either interval or ratio data.
2. The variables must be normally distributed.
3. Having homoscedasticity of the data.
4. Having linear relationship between the variables.

Source: Laerd Statistics (2013)

3.5.3.2 Multiple Regressions Analysis

Multiple regressions analysis enables the investigation of relationships between several independent variables and a dependent variable (Hair et al., 2006, p. 169). Those relationships can be indicated by drawing a best-fit line or by calculating a regression equation (Saunders et al., 2009, p. 462; Zikmund et al., 2010, p. 567). In this study, the dependent variable is intention to use MBS. Six independent variables were proposed as the explanations to resistance. Therefore, the regression equation will be:

$$\mathbf{ITU = \alpha + \beta_1 UB + \beta_2 VB + \beta_3 RB + \beta_4 TB + \beta_5 IB + \beta_6 FCB}$$

Where:

ITU = Intention to use

UB = Usage Barrier

VB = Value Barrier

RB = Risk Barrier

TB = Tradition Barrier

IB = Image Barrier

FCB = Financial Cost Barrier

α = Regression Constant

$\beta_1 \ldots \beta_6$ = Beta Coefficients for UB, VB, RB, TB, IB & FCB

The regression weight of one independent variable is affected by those associated with another when the independent variables are related to each other. Therefore, considering the effect of other independent variables is needed when understanding how one independent variable affects the dependent variable (Zikmund et al., 2010).

Table 3.4 shows the assumptions underlying:

Table 3.4 Assumptions underlying Multiple Regression Analysis

1. The variables must be normally distributed.
2. The variables must be measured without error.
3. Having linear relationship between variables.
4. Having homoscedasticity of data.

Source: Osborne and Waters (2002)

Overall, the proposed framework in this study seeks to close the gap in past researches through the measurement of six proposed resistance factors toward the intention to use MBS among the baby boomers in Malaysia urban areas.

3.6 Data Processing

Before the analysis of data, several steps of checking, editing, coding, and transcribing data, as well as specifying special or unusual treatments of data would be carried out.

3.6.1 Data Checking

Data checking is carried out at first to ensure the completeness and interview quality of the questionnaire. A pilot test has been conducted prior to the survey to examine the reliability and acceptability of

questionnaire, and understanding of the words used to make the adjustment before carrying out the actual survey (Zikmund et al., 2010). According to Fink (2003), 30 sets of questionnaire would be sufficient for a pilot test. Appendix C shows the questionnaire set for the pilot test.

Table 3.5: Cronbach's Alpha Coefficient for Pilot Test Survey

Variables	Cronbach's Alpha	N of items
UB	0.905	5
VB	0.799	4
RB	0.824	5
TB	0.524	4
IB	0.730	3
FCB	0.874	4
ITU	0.888	3

Source: Developed for the research

Table 3.5 shows the results of reliability test for pilot testing. Overall, the Cronbach's Alpha of all barriers and ITU are strong and above the criteria of 0.7 (Hair et al., 2006; Lu et al., 2011), except for TB. Therefore, TB has been removed to conduct again the reliability test. The subsequent result for other variables (UB, VB, RB, IB, FCB and ITU) showed no difference with the result above. Hence, the questionnaire items for TB have been removed before the actual data collection. As a result, the questionnaire items have been reduced to 25 items.

Besides, based on the feedback received from the respondents, the original items of ITU, which asked about the intention to use MBS in

positive way, has confused them to choose the right option, therefore all the items for ITU has been changed by asking them in negative way as shown in table 3.6.

Table 3.6: Revised items for ITU

Items	Original items	Revised items
ITU1	Have intention to use mobile banking services.	Have no intention to use mobile banking services.
ITU2	Consider to use mobile banking services in the future.	Do not consider to use mobile banking services in the future.
ITU3	Have intention to use mobile banking services in order to increase the convenience.	Have no intention to use mobile banking services in order to increase the convenience.

Source: Developed for the research

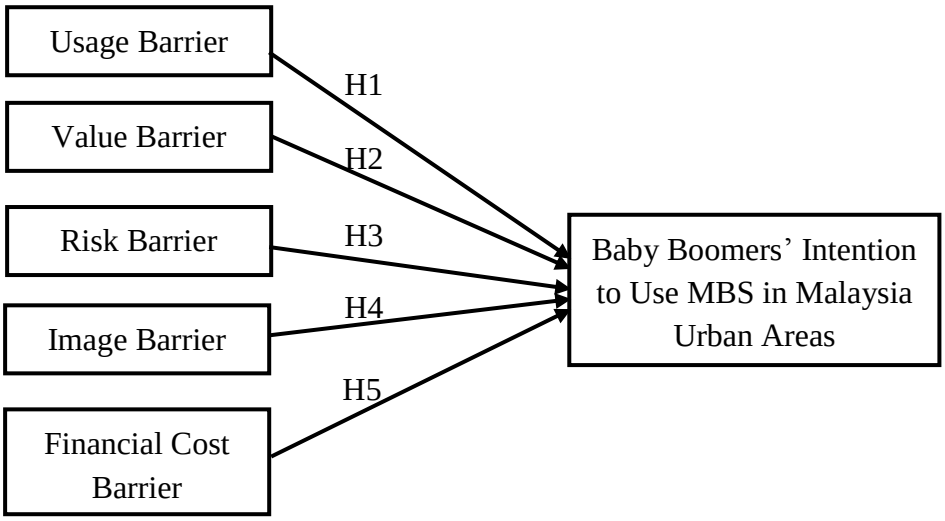
Appendix 3.5 shows the revised questionnaire in this study after removing all items of TB and restructuring all items for ITU.

3.6.1.1 Revised Proposed Conceptual Framework/Research Model

After the data checking process, the factors employed to predict the baby boomers' intention to use MBS in Malaysia urban areas are only usage, value, risk, image, and financial cost barrier.

Figure 3.1 shows that the proposed conceptual framework has been revised in accordance with the pilot test result by removing TB.

Figure 3.1: Revised Proposed Conceptual Framework of Resistance Factors and Baby Boomers' Intention to Use MBS in Malaysia Urban Areas



Adapted from: IRT (Ram & Sheth, 1989); Valence Framework (Yang et al., 2011)

3.6.1.2 Hypothesis Development

After the process of data checking, the hypothesis development has been developed as below:

H1: There is a significant relationship between UB and baby boomers' intention to use MBS in Malaysia urban areas.

H2: There is a significant relationship between VB and baby boomers' intention to use MBS in Malaysia urban areas.

H3: There is a significant relationship between RB and baby boomers' intention to use MBS in Malaysia urban areas.

H4: There is a significant relationship between IB and baby boomers' intention to use MBS in Malaysia urban areas.

H5: There is a significant relationship between FCB and baby boomers' intention to use MBS in Malaysia urban areas.

3.6.2 Data Editing

Data editing is a necessary process in order to review and edit each questionnaire for detecting any illegible, inconsistent, unsatisfactory, or ambiguous response. In this study, all the incomplete and illegible data were being discarded before the data analysis in order to increase accuracy and precision of the study.

3.6.3 Data Coding

As this study is a quantitative research, numerical codes should be used to record all data types in the study in order to simplify the data entry process (Saunders et al., 2009).

Table 3.7 shows the numerical codes of each question in Section A of the questionnaire. For each question in Section B and C of the questionnaire, "Strongly Disagree" is coded as 1, "Disagree" is coded as 2, "Neutral" is coded as 3, "Agree" is coded as 4, and "Strongly Agree" is coded as 5.

Table 3.7: Numerical Codes used in Section A of the Questionnaire

Section A	Categories	Numerical Codes
1. Gender	Female	1
	Male	2
2. Race	Malay	1
	Chinese	2
	Indian	3
	Others	4
3. Marital Status	Single	1
	Married	2
4. Education Level	None	1
	Primary School	2
	High School	3
	Diploma	4
	Degree	5
	Master or above	6
5. Income Level (per month)	RM1,000 or below	1
	RM1,001 – RM3,000	2
	RM3,001 – RM5,000	3
	Above RM5,000	4

Source: Developed for the research

3.6.4 Data Transcription

All the coded data were transcribed using the data analysis software, Statistical Analysis System (SAS) Enterprise Guide 5.1 in order to analyse the data as well as generate the result.

3.7 Conclusion

In this chapter, the research methodology and data analysing technique were provided and illustrated. The next chapter would show and discuss the result yielded from the survey which had been conducted.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

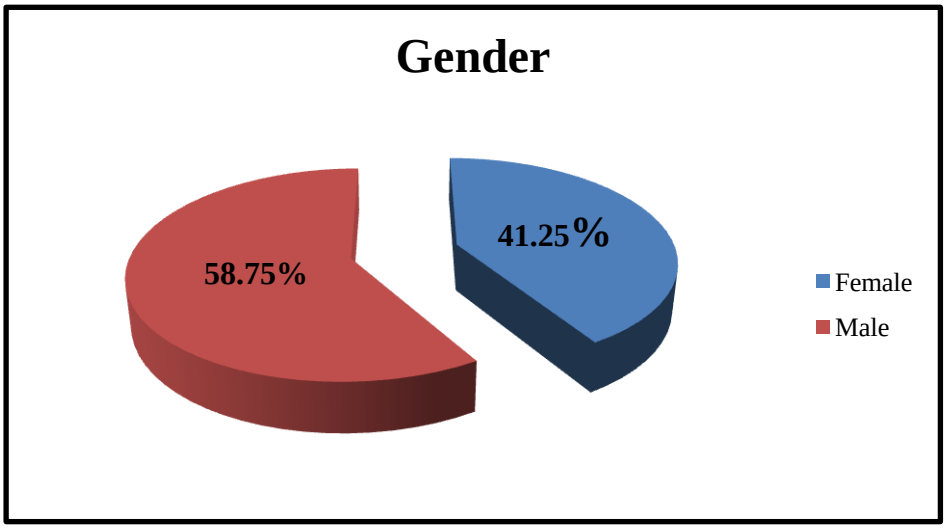
This chapter explains and illustrates the result yielded from the survey by providing the descriptive analysis, scale measurement as well as the inferential analysis.

4.1 Descriptive Analysis

4.1.1 Demographic Profile of Respondents

The demographic profile of the surveyed respondents is presented in this section, including gender, race, marital status, education level, and income level. The usable survey questionnaires are 320 sets.

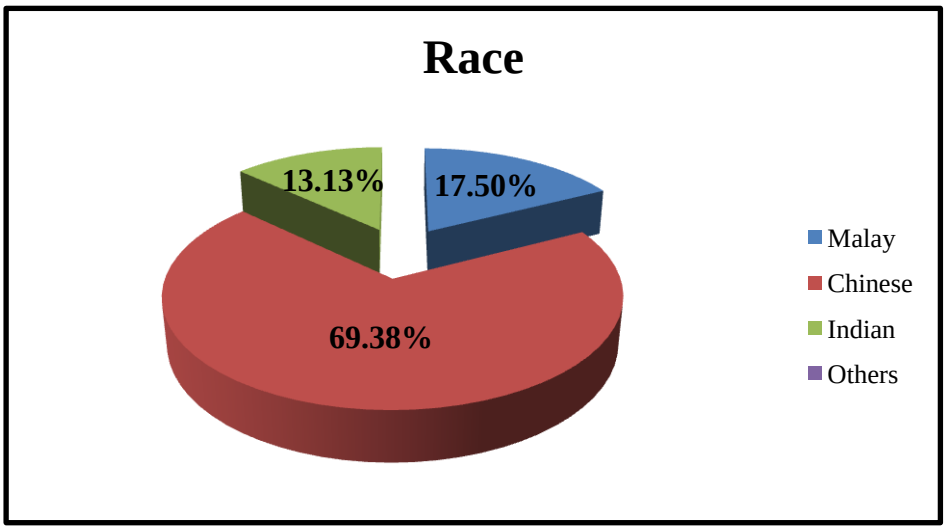
Figure 4.1: Percentage of Respondents based on Gender



Source: Developed for the research

According to Figure 4.1, there are 132 females (41.25%) and 188 males (58.75%) out of the 320 respondents.

Figure 4.2: Percentage of Respondents based on Race

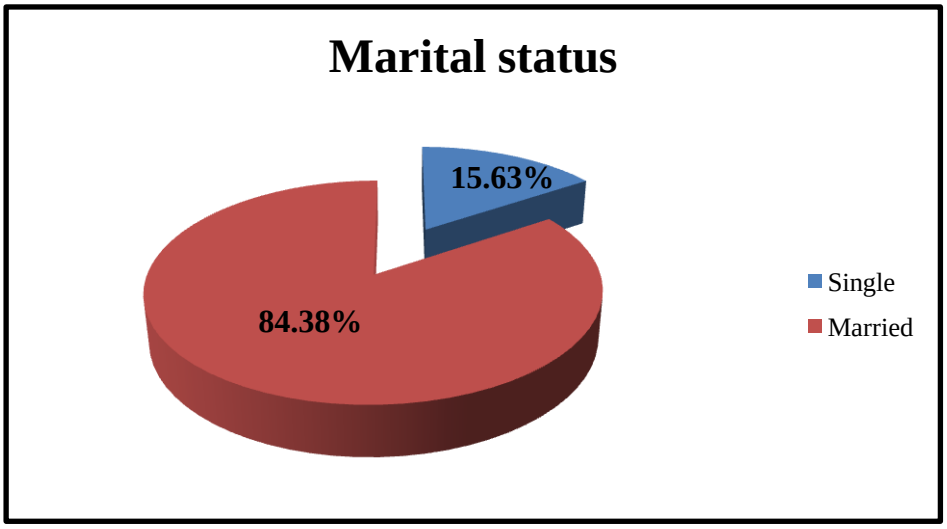


Source: Developed for the research

Figure 4.2 shows that most of the respondents are Chinese, which comprises 69.38% (222 respondents) of the respondents. It followed by

Malay and Indian, which comprises 17.50% (56 respondents) and 13.13% (42 respondents) of the respondents respectively.

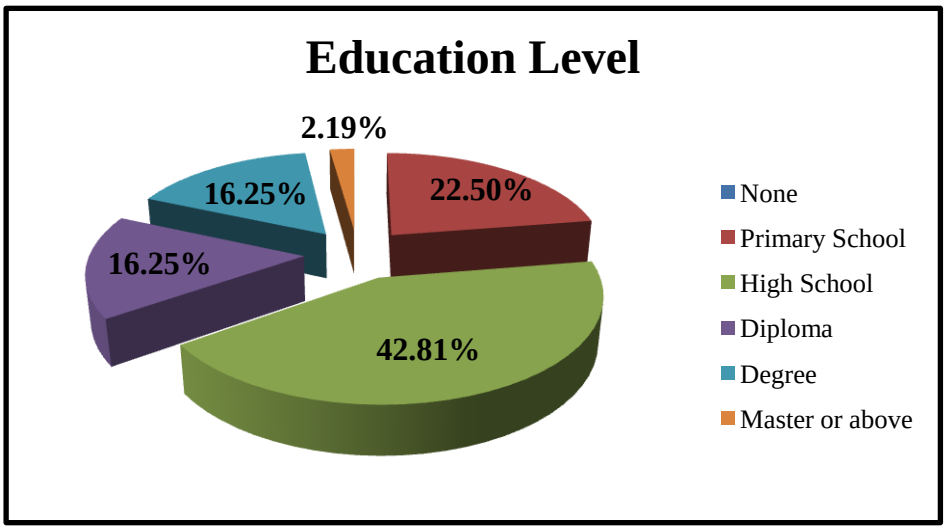
Figure 4.3: Percentage of Respondents based on Marital Status



Source: Developed for the research

Figure 4.3 demonstrates that most of the respondents are married which comprises 84.38% or 270 respondents while only 15.63% or 50 respondents are single.

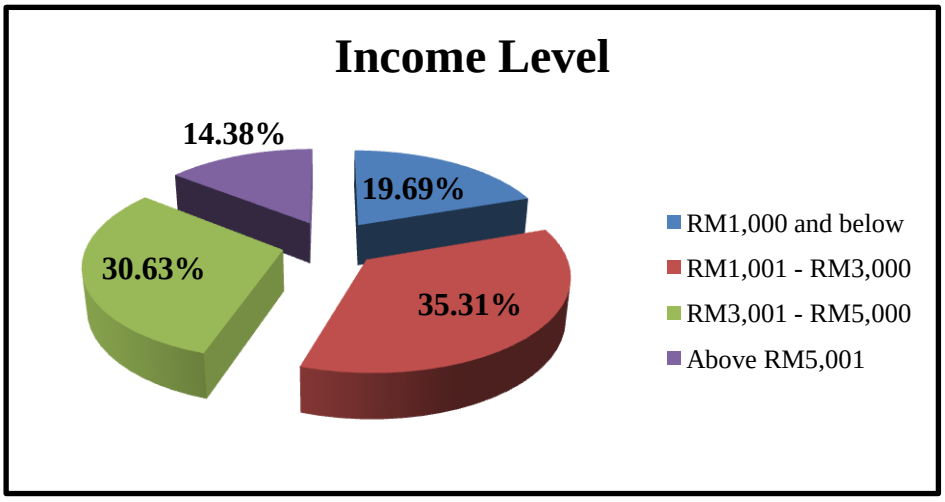
Figure 4.4: Percentage of Respondents based on Education level



Source: Developed for the research

Majority of the respondents' highest education level achieved are high school, which consist of 137 (42.81%) respondents. Subsequently, 22.50% (72 respondents) of the respondents possess primary school education level. It followed by diploma holders and degree holders, which both are 52 respondents (16.25%). The remaining 7 respondents are master holders (2.19%). There is none of the respondents without educational background.

Figure 4.5: Percentage of Respondents based on Income level



Source: Developed for the research

Figure 4.5 indicates that most of the respondents (35.31% or 113 respondents) have monthly income of RM1,001 - RM3,000. Followed by the category of RM3,001 - RM5,000 which comprises 30.63% (98 respondents). Subsequently, there are 19.69% (63 respondents) of the respondents' income level fall into the category of RM1,000 and below. Lastly, there are 14.38% (46 respondents) of the respondents earn above RM5,000.

4.1.2 Central Tendencies Measurement of Constructs

Table 4.1: Central Tendencies Measurement of Constructs

Variables	Items	SD	D	N	A	SA	Means	Std. Dev.
Usage Barrier	UB1	2.19%	27.5%	33.75%	27.50%	9.06%	3.1375	0.9921
	UB2	4.06%	28.13%	37.19%	23.75%	6.88%	3.0125	0.9793
	UB3	4.38%	23.13%	40.94%	26.56%	5.00%	3.0469	0.9340
	UB4	0.94%	17.50%	36.88%	38.13%	6.56%	3.3188	0.8701
	UB5	0.63%	13.13%	38.13%	36.25%	11.88%	3.4563	0.8877
Value Barrier	VB1	3.75%	35.00%	42.50%	16.56%	2.19%	2.7844	0.8419
	VB2	1.25%	15.00%	53.44%	25.94%	4.38%	3.1719	0.7789
	VB3	1.56%	18.44%	35.31%	37.81%	6.88%	3.3000	0.9014
	VB4	5.31%	54.38%	29.38%	10.00%	0.94%	2.4688	0.7832
Risk Barrier	RB1	0.63%	15.63%	34.69%	20.00%	9.06%	3.4125	0.8809
	RB2	3.13%	10.31%	50.31%	28.75%	7.50%	3.2719	0.8626
	RB3	0.63%	7.50%	30.63%	50.63%	10.63%	3.6312	0.7967
	RB4	0.31%	7.50%	10.31%	54.69%	27.19%	4.0094	0.8398
	RB5	0.00%	8.75%	6.88%	53.13%	31.25%	4.0688	0.8537
Image Barrier	IB1	3.75%	32.19%	45.00%	17.81%	1.25%	2.8063	0.8152
	IB2	1.25%	19.38%	30.94%	37.50%	10.94%	3.3750	0.9584
	IB3	0.94%	19.28%	39.06%	34.06%	6.56%	3.2594	0.8772
Financial Cost Barrier	FCB1	3.75%	39.38%	42.50%	13.13%	1.25%	2.6875	0.7933
	FCB2	3.13%	42.81%	33.44%	17.50%	3.13%	2.7469	0.8897
	FCB3	1.88%	32.19%	38.44%	25.00%	2.50%	2.9406	0.8635
	FCB4	5.94%	45.00%	32.19%	13.75%	3.13%	2.6313	0.9037
Intention to use	ITU1	0.94%	15.31%	32.50%	41.56%	9.69%	3.4375	0.8971
	ITU2	3.44%	25.31%	39.69%	25.31%	6.25%	3.0563	0.9452
	ITU3	4.38%	25.31%	41.56%	23.13%	5.63%	3.0031	0.9419

Source: Developed for the research

Table 4.1 shows the overall means and the standard deviations of 5IVs and a DV in this study. The means of all the variables are more towards agreed except for the variable of FCB, which ranged from 2.6313 to 2.9406. The means of UB ranged from 3.0125 to 3.4563. The range of

VB's means is from 2.4688 to 3.3000. RB has the highest means of 4.0688 among all the variables, while the lowest means of risk barrier is 3.2719. The highest means of IB is 3.3750 whereas the lowest is 2.8063. The means of ITU is ranged from 3.0031 to 3.4375.

Table 4.1 also indicates that the standard deviations for all the variables are less than 1 which means that there is less dispersion of data. UB has the highest standard deviation of 0.9921 among all the variables, which indicates that the most disperse the data. The lowest standard deviation of UB is 0.8701. The range of value barrier's standard deviation is from 0.7789 to 0.9014. The standard deviation of RB is ranged from 0.7967 to 08809. The highest standard deviation of IB and FCB are 0.9584 and 0.9037 respectively. However, their lowest standard deviation of are 0.8152 and 0.7933 respectively. ITU recorded the highest standard deviation of 0.9452 and the lowest of 0.8971.

4.2 Scale Measurement

4.2.1 Normality Analysis

Table 4.2: Tests for Normality

Test	Statistic		p Value	
Kolmogorov-Smirnov	D	0.082829	Pr>D	< 0.0100

Source: Developed for the research

As the p-value for the Kolmogorov-Smirnov Tests of Normality is less than 0.05, the normality of the samples is not supported by Kolmogorov-Smirnov. Thus, this study employed skewness and kurtosis to prove the existence of normal distribution.

Skewness is the degree of asymmetry in a frequency distribution (Cramer & Howitt, 2004). If the skewness value is positive, the distribution is said to be positively skewed and would show a longer tail to the left (Saunders et al., 2009). In contrast, if the skewness value is negative, the distribution is said to be negatively skewed and would then show a longer tail to the right (Saunders et al., 2009).

Saunders et al. (2009) have mentioned that the kurtosis is the distribution's pointedness or flatness compared with normal distribution. If the kurtosis value is positive, the distribution is said to be more pointed or peaked (Saunders et al., 2009). Whilst, if the kurtosis value was negative, the distribution is said to be flatter (Saunders et al., 2009). According to Michael, Alan & Tim (2004), both skewness and kurtosis value of all items should fall in a range from +2 to -2 if the data is normally distributed. Thus, the data of this study is said to be normally distributed since values of skewness and kurtosis for all items fall within the range of ±2.

.

Table 4.3: Summary of Skewness and Kurtosis for Usage Barrier

Items	Skewness	Kurtosis
UB1	0.1475	-0.7491
UB2	0.1563	-0.5164
UB3	-0.0471	-0.3523
UB4	-0.1498	-0.5125
UB5	-0.0563	-0.493

Source: Developed for the research

There are two items (UB1 and UB2) positively skewed and three items (UB3, UB4 and UB5) negatively skewed. The values of kurtosis for all items are negative, which means that the distributions of the items are flatter than a normal distribution (Coakes, Steed, & Ong, 2010).

Table 4.4: Summary of Skewness and Kurtosis for Value Barrier

Items	Skewness	Kurtosis
VB1	0.2668	-0.1755
VB2	0.0906	0.2263
VB3	-0.1892	-0.5022
VB4	0.6950	0.3168

Source: Developed for the research

All the items for VB are positively skewed except VB3. VB2 and VB4 have positive value for kurtosis, which means that the distributions of these two items are peaked than a normal distribution (Coakes et al., 2010).

Table 4.5: Summary of Skewness and Kurtosis for Risk Barrier

Items	Skewness	Kurtosis
RB1	-0.1606	-0.5384
RB2	-0.1426	0.3965
RB3	-0.4363	0.1721
RB4	-0.9125	0.7692
RB5	-0.9839	0.6808

Source: Developed for the research

All the items for risk barrier are negatively skewed and their distribution are peaked than a normal distribution except RB1 as it has negative value for kurtosis (Coakes et al., 2010).

Table 4.6: Summary of Skewness and Kurtosis for Image Barrier

Items	Skewness	Kurtosis
IB1	0.0905	-0.2808
IB2	-0.1451	-0.7066
IB3	-0.0261	-0.5455

Source: Developed for the research

There are two items (IB2 and IB3) negatively skewed and all the items with negative value for kurtosis are distributed flatter than a normal distribution (Coakes et al., 2010).

Table 4.7: Summary of Skewness and Kurtosis for Financial Cost Barrier

Items	Skewness	Kurtosis
FCB1	0.3157	-0.0781
FCB2	0.5193	-0.3160
FCB3	0.1736	-0.6709
FCB4	0.5652	-0.0172

Source: Developed for the research

All the items for FCB are positively skewed and distributed flatter than a normal distribution as their value for kurtosis are negative (Coakes et al., 2010).

Table 4.8: Summary of Skewness and Kurtosis for Intention to Use

Items	Skewness	Kurtosis
ITU1	-0.2437	-0.4789
ITU2	0.0891	-0.4381
ITU3	0.0844	-0.3224

Source: Developed for the research

There is one item (ITU1) negatively skewed while ITU2 and ITU3 are positively skewed. The negative values for kurtosis show that all the items are distributed flatter than a normal distribution (Coakes et al., 2010).

4.2.2 Reliability Analysis

Table 4.9: Summary of Reliability Statistics

Variables	Cronbach's Alpha	Number of Items
Usage Barrier	0.801932	5
Value Barrier	0.753139	4
Risk Barrier	0.800885	5
Image Barrier	0.784310	3
Financial Cost Barrier	0.851993	4
Intention to Use	0.880209	3

Source: Developed for the research

Table 4.9 shows the result of reliability test for every variable. All the variables are viewed as reliable as their Cronbach's alpha are exceeding the minimum value of 0.7 (Hair et al., 2006; Lu et al., 2011). Thus, it can be concluded that all the items adapted in the questionnaire for this study are reliable.

4.3 Inferential Analysis

4.3.1 Pearson's Correlation Analysis

Table 4.10: Correlation between Variables

Pearson Correlation Coefficients, N=320						
	UB	VB	RB	IB	FCB	ITU
UB	1					
VB	0.4822 <.0001	1				
RB	0.4040 <.0001	0.4093 <.0001	1			
IB	0.5569 <.0001	0.6382 <.0001	0.5403 <.0001	1		
FCB	0.3827 <.0001	0.5429 <.0001	0.4407 <.0001	0.5619 <.0001	1	
ITU	0.4073 <.0001	0.4357 <.0001	0.4102 <.0001	0.5085 <.0001	0.2956 <.0001	1

Source: Developed for the research

As indicated in table 4.10, all the hypothesized assumptions are significant since their p-values are less than 0.05. The analysis result implies that UB ($r=0.4073$, $p<0.05$), VB ($r=0.4357$, $p<0.05$), RB ($r=0.4102$, $p<0.05$), IB ($r=0.5085$, $p<0.05$) and FCB ($r=0.2956$, $p<0.05$) are all having significant and positive correlation with ITU.

In this research, among all the correlations between factors and ITU, IB has the strongest correlation with ITU ($r=0.5085$, $p<0.05$), followed up by the correlation between VB and ITU ($r=0.4357$, $p<0.05$). While, FCB has the weakest correlation with ITU ($r=0.2956$, $p<0.05$).

Besides, the results indicate no multicollinearity problem as the correlations between variables are all less than 0.90 (Hair et al., 2006, p. 227).

4.3.2 Multiple Regression Analysis

Table 4.11: Multiple Regression Analysis: Model Summary

Root MSE	0.69517	R-Square (R^2)	0.3158
Dependent Mean	3.16563	Adj R-Sq	0.3049
Coeff Var	21.95981		

Source: Developed for the research

Table 4.11 indicates that the value of R^2 of the five factors is 0.3158. This means that 31.58% of the variation in ITU can be explained by all the 5 resistance factors, namely UB, VB, RB, IB and FCB.

Table 4.12: Multiple Regression Analysis: ANOVA

Source	DF	Sum of Squares	Mean Square	F	Sig.
Model	5	70.03539	14.00708	28.98	<.0001
Error	314	151.74204	0.48325		
Corrected Total	319	221.77743			

Source: Developed for the research

Table 4.12 indicates that the F-value (28.98) is large. This shows that the model employed in this study is fit as the F-value was significant at 1 percent level (Sig. of F<0.01). In addition, the p-value of 0.000 is less than alpha value of 0.05. This means that at least one of the five predictor variables can be used to model ITU. Hence, as a whole, the relationship between all factors and ITU in this research is significant.

Table 4.13: Multiple Regression Analysis: Coefficients

Variable	Beta	t	Sig.	Hypothesis	Supported/ Not Supported
Intercept	0.43866	1.70	0.0909	-	-
UB	0.15744	2.28	0.0235	H1	Supported
VB	0.21923	2.56	0.0109	H2	Supported
RB	0.22714	3.02	0.0028	H3	Supported
IB	0.31607	3.94	0.0001	H4	Supported
FCB	-0.09042	-1.30	0.1943	H5	Not Supported

Source: Developed for the research

According to table 4.13, UB (p=0.024), VB (p=0.011), RB (p=0.003) and IB (p<0.001) are all significantly affecting the ITU. They are the important factors that influence the intention of baby boomers in Malaysia urban areas to use MBS. Among these factors, IB is the strongest determinant.

UB is the least important factor in this study, but it is still significant in influencing the intention of baby boomers to use MBS. However, for FCB (p=0.194), it has been found that this resistance factor is not significantly associated with intention to use MBS.

The equation of the model employed in this study is as below:

ITU = 0.4387 + 0.1574 UB + 0.2192 VB + 0.2271 RB + 0.3161 IB – 0.0904 FCB

4.4 Conclusion

This chapter illustrated the demographic profile of the respondents, and the results acquired from the data collected by using different analysis. Based on the results, we would discuss the major findings, implications, limitation and recommendation of this study in chapter five.

CHAPTER 5: DISCUSSIONS, CONCLUSION AND IMPLICATIONS

5.0 Introduction

This chapter would point out the summary of demographic profile of target respondents and the result of the data analysis. Besides, it also provides the major findings, implications, limitations and recommendations for future research.

5.1 Summary of Statistical Analysis

5.1.1 Summary of Descriptive Analysis

A total of 400 questionnaires were distributed, but only 349 sets were collected and 320 sets are usable questionnaires. Hence, the response rate yielded and usable rate for questionnaire are 87.25% and 91.69% respectively. In this study, the number of male's respondents was higher than female. Besides, the majority of respondents is Chinese and was married. Moreover, most of the respondents are still having a job and therefore the financial power.

Based on the SAS analysis conducted, the lowest and highest means of all items in the questionnaire are 2.4688 and 4.0688 respectively.

According to the analysis, most of the respondents has agreed with the items for four independent variables (usage, value, risk and image barriers), except FCB. Furthermore, the standard deviations for all items are less than 1, where the lowest and highest values are 0.7789 and 0.9921 respectively. It means that the data values had been temperately spread around the central tendency.

5.1.2 Summary of Scale Measurement

Based on SAS data analysis, the normality and reliability of data collected has been tested and proven. The data is assumed to be normally distributed which further proven by skewness and kurtosis test as all items being tested fall within the range of ±2. Meanwhile, by using Cronbach's alpha, all variables are assumed to be reliable as all their values exceed the threshold value (0.7).

5.1.3 Summary of Inferential Analysis

According to the Pearson's correlation analysis, all factors are assumed to have significant relationship with the ITU since the p-value is less than 0.05. The IB has strongest correlation whereas FCB has weakest correlation with ITU. Besides, all factors have no multicollinearity problem as the correlations between them do not exceed 0.9.

Based on multiple regression analysis, it shows that these five resistance factors can explain 31.58% of the variation in ITU. The result

represents that at least one of the five predictor variables can be used to model ITU. Moreover, the coefficients indicate that four factors (UB, VB, RB and IB) are significantly affecting the ITU, while only 1 factor (FCB) is not significantly affecting the ITU.

5.2 Discussions of Major Findings

5.2.1 Usage Barrier

In this study, the UB has been proven to have a significant influence and positive relationship with the baby boomers' resistance to use MBS. From the analysis in chapter four, the p-value of 0.0235 shows that UB is significantly affecting intention to use MBS among the respondents. Thus, hypothesis 1 is supported as the p-value is less than 0.05. Besides, the r-value of 0.4073 in Pearson's correlation analysis also indicates that UB has 40.73% or moderately positive relationship with the baby boomers' resistance to MBS.

The result is consistent with few past studies. According to Laukkanen et al. (2007b), they found that the changes in existing habits of consumers would force them to adjust or change their routine behaviours, thus consumers those refuse to change would resist to use MBS.

This research shows that most of the baby boomers tend to agree that they would face inconvenience in changing of PIN, and also confuse with the usage and progress in MBS.

Different types of services may have a significant effect on baby boomers' intention to use MBS (Lian et al., 2012). Difficulties in the operation of online banking service may also cause them failing to enjoy the convenience provided (Lian et al., 2012). Kuisma et al. (2007) justified that the resistance could be caused by lacking of internet connection, changeable passwords and unclear proceeding at the monitor. Moreover, the lack of usage knowledge also made baby boomers to perceive difficulty in use of new technology.

5.2.2 Value Barrier

Based on analysis from chapter four, it shows that VB has a significant relationship and positive association with the baby boomers' resistance to MBS. The VB significantly influences the intention of respondents to use the services as the p-value of 0.0109 is less than 0.05. Hence, it proves that hypothesis 2 is supported and VB is one of the factors that would affect the intention to use MBS among respondents. Furthermore, r-value of 0.4357 represents that the VB has 43.57% or moderately positive relationship with baby boomers' resistance to MBS.

Result in this study is coherent with several past studies (Aslam et al., 2011; Laukkanen et al., 2007a; Laukannen et al., 2007b). In fact, some consumers think that using electronic banking service is economical. However, VB became the most intense barrier that influences baby boomers to use MBS possibly because the innovative services do not provide more value-for-money or any other benefit compared to handling

financial matters through other banking channels, such as Internet banking and ATM (Laukkanen et al., 2007b). For instance, majority of the respondents felt that MBS could not increase their ability to control their financial matters. Thus, consumers are more willing to visit the bank or prefer personal customer service which could make them more clear and understand about their financial matter.

Lack of education and knowledge marketing about the features, existence, advantages and benefits of MBS from the banks and bankers may also cause the resistance to MBS among baby boomers (Aslam et al., 2011).

5.2.3 Risk Barrier

A significant value of less than 0.05, which is 0.0028 is achieved, indicates that RB is the second most significant barrier to adoption of MBS among baby boomers. Hence, hypothesis 3 is supported. Besides, there is a r-value of 0.4102, which indicates a positive relationship between RB and intention to use MBS among baby boomers in Malaysia urban areas. When there is more risk in using MBS, baby boomers are more unwilling to use the service.

This result is found to be consistent with the past researches (Lu et al., 2011; Luo et al., 2010; Munusamy et al., 2012; Peng et al., 2011; Shin, 2009). Consumers' intention to use MBS could be decreased by their perception of risk (Lu et al., 2012; Peng et al., 2011).

This research found out that most baby boomers reluctant to use MBS due to the fear of mobile banking account PIN may be lost or stolen during stolen and also the possibilities for unauthorised third parties to access their account information. Shin (2009) had mentioned that security for the electronic exchange of financial information, which would be involved in mobile transactions, is critical. Therefore, the resistance to MBS could be caused by the risk in the form of leakage of consumers personal and account information (Munusamy et al., 2012).

In conclusion, the more risk the MBS is, the less the intention to use MBS among baby boomers.

5.2.4 Image Barrier

IB yielded a significant value of 0.0001, which implies that Hypothesis 4 is supported. With the r- value of 0.5085, IB is positively affecting baby boomers' resistance toward MBS. As there are more perceived complication of using new technologies such as MBS, baby boomers tend to unwilling to use MBS.

This result is coherent with the findings of the past studies conducted by Elbadrawy and Aziz (2011), Laukkanen et al. (2007a), and Lian et al. (2012) which demonstrate that IB has a significant negative relationship with the user's intention to use an online service. A negative image toward new technology and MBS, in which they think MBS is difficult to use, could cause the baby boomers to resist the services (Laukkanen et al., 2007a). The result of this study shows that most of the baby boomers in

Malaysia have positive impression towards MBS but they perceived it as difficult to use.

Therefore, the higher the difficulty in using MBS perceived by baby boomers, the more reluctant the baby boomers toward adopting the MBS.

5.2.5 Financial Cost Barrier

Hypothesis 5 is not supported due to the significance value of 0.1943, which more than 0.05. Therefore, FCB is proven to be insignificant in explaining the intention to use MBS among baby boomers. This result is not agreed with the past studies of Kuo and Yen (2009), Luarn and Lin (2005), Yang et al. (2011) and Yu (2012). Those researches indicated that FCB is a significant barrier to MBS adoption.

However, the result of this study is supported by the past research of Lewis et al. (2010). The research implied that perceived cost does not have effect on behavioral intention. Insignificant effect in FCB of the research may due to respondents' ambiguity over the distinction between actual costs of installation and using the MBS, and hidden transaction cost.

Furthermore, Cruz, Neto, Munoz-Gallego, and Laukkanen (2010) stated that the older a person is, the lower the perception of cost as a problem. This probably because older people have better earnings and therefore more spending power than younger (Cruz et al., 2010; Chong, Chan, & Ooi, 2012). This is similar with the statement mentioned by Yu (2012) - the effect of perceived financial cost was insignificant to those aged over

50. Also, Lim et al. (2011) stated that baby boomers are in the peak earning years and have high financial power. Therefore, they are affordable to the transaction cost and the cost using MBS.

5.3 Implications of the study

5.3.1 Managerial Implications

Based on above analysis, there are several implications that might be useful for the banking industry's decision makers in implementing or improving their MBS.

While the past researches focused mainly on resistance to use Internet and mobile banking services in the countries other than Malaysia, this study represents how baby boomers in Malaysia urban areas intend to use MBS as affected by UB, VB, RB, IB, and FCB. The information and results acquired in this study provide a better understanding of why baby boomers resist MBS, and therefore would guide the potential researchers who are interested in studying in this area, and also the local bankers to solve the consumer resistance to MBS.

The result shows that IB is the most intense barrier toward the intention of baby boomers to use MBS. Most of the respondents felt that new technology, especially online services, is complicated to be useful. Therefore, they are unwilling to use the services even though most of them responded that it is a good service in fact. Hence, the bankers could

try to improve the MBS to be more user-friendly, and to implement proper communication strategies such as mass media or face-to-face contact with the consumer to enhance their positive perception toward MBS (Laukkanen, Sinkkonen & Laukkanen, 2009).

Besides, RB is one of the important predictors of the baby boomers' intention to use MBS. Based on the findings of this study, the possibilities of PIN being lost or stolen and account information being accessed by unauthorised third parties are the main issues causing the respondents to resist MBS. As mentioned by Luo et al. (2010), lower potential risks of financial transactions in the wireless platform perceived by consumers will tend to reduce the resistance to MBS. In this respect, the bankers should provide adequate security and privacy assurance to show that customers' confidentiality is always their main concern (Lu et al., 2011; Munusamy et al., 2012). Laukkanen et al. (2007b) had also recommended banks to develop other authentication methods to replace the lists of PIN codes. Moreover, it is suggested that consumers' risk perception can be reduced by educating them about the wireless Internet platform and increasing their awareness of security and the assurance of the technologies implemented (Shin, 2009; Luo et al., 2010).

Majority of respondents agreed that UB significantly influences their intention to use MBS. According to their responses, MBS is difficult and inconvenient to use, as it has unclear progress and inconvenient PIN changing process. Thus, bankers should try to simplify the process of using MBS, and provide more useful features to the users. For instance, they could provide more language versions other than English version as

baby boomers may resist MBS not only because of the difficulty to use new technology, but also their inability to read in English.

The findings of this study also indicate that VB has a significant positive relationship with the baby boomers' resistance to MBS. Baby boomers are a group of people who are slow to accept new technology (McLeod, 2009), and will not simply adopt it just because of the trendy unless the products and services meet a real needs (Laukkanen et al., 2007b). As such, the bankers might conduct proper marketing campaigns to illustrate and emphasise the benefits of MBS compared to other ways of executing the financial services (Laukkanen et al., 2007b).

However, based on this study, FCB is insignificant in explaining the baby boomers' intention to use MBS in Malaysia urban areas, therefore this factor should no longer be taken into consideration when the bankers develop or improve their services.

In conclusion, all the results generated and analysed in this study might become a useful tool to guide the bankers in improvement or implementation of MBS, by enhancing the confidence and willingness of the baby boomers to use the services.

5.3.2 Theoretical Implications

From theoretical point of view, this study shows the importance of IRT in explaining the baby boomers' resistance to MBS. The proposed conceptual framework of this study focused on how the baby boomers'

intention to use MBS is affected by the five barriers (usage, value, risk, image, and financial cost). Eventually, this study has proven that IRT serves as an effective theory in predicting the intention to use MBS among baby boomers in Malaysia urban areas. Therefore, this indicates that IRT is applicable in studies which focus on consumer resistance to technological innovation.

5.4 Limitations and Recommendations

As this study is conducted only in Malaysia urban areas, thus the result generated might be different with the study conducted in other countries or even in Malaysia rural areas. As found out by the study of Laforet and Li (2005), there will be differences in demographic characteristic and attitudes towards online or mobile banking due to the different national culture. Hence, future researchers are recommended to conduct the study in countries other than Malaysia to investigate the barriers affecting the intention to use MBS among the consumers.

In addition, the target respondent of this study is focused only on baby boomers; hence the response obtained might not be same with other generations, such as generation Y and X. For instance, these two generations might find that the MBS are not difficult to use and therefore UB might become not significant in affecting the adoption of MBS. As such, the respondent in other age range should be targeted in future studies. A comparison between different generations could also be done in future studies, to observe whether different generation has different impact on the relationship between the five barriers and intention to use MBS.

Besides, the results obtained are mainly from Chinese respondents. It is highly recommended for future studies to increase the proportion of other races' responses. Therefore, the results obtained will be more reliable and valuable to the bankers.

Furthermore, the R^2 (0.3158) of the model in this study is at the moderate level. Saunders et al. (2009) had mentioned that the R^2 must be within the range from 0 to 1. Since the R^2 of the model falls within the range from 0.25 to 0.64, which is considered as moderate level by Mezick (2007), the predictor power of the model is less for the respondents in this study. In order to increase the R^2, the common way is to include more other variables to the model (Weil, Frank, Hughes & Wagner, 2007). Therefore it is suggested that the future studies could try to add more relevant variables into the model employed by this study, such as social influence, which is the most significant influence to the intention to use MBS in the study of Yu (2012).

5.5 Conclusion

After the continual process of research, this study provides solution to all research questions and fulfills all research objectives. Therefore, it is proven that IRT is fit and is able to predict the baby boomers' intention to use MBS. The findings obtained from this study indicates that UB, VB, RB, IB are significant determinants influencing the intention to use MBS among baby boomers in Malaysia urban areas. However, FCB has no significant relationship with baby boomers' intention to use MBS. This study also concludes that IB and RB have the strongest effects on baby boomers' intention to use MBS among all the barriers.

REFERENCES

Aboelmaged, M. G. (2010). Predicting e-procurement adoption in a developing country: An empirical integration of technology acceptance model and theory of planned behaviour. *Industrial Management & Data Systems, 110* (3), 392-414.

Antioco, M., & Kleijnen, M. (2010). Consumer adoption of technological innovations: Effects of psychological and functional barriers in a lack of content versus a presence of content situation. *European Journal of Marketing*, *44*(11/12), 1700-1724.

Aslam, H. D., Khan, M., Tanveer, A., & Amber, T. (2011). Perceived barriers towards adoption of internet banking among non-metropolitan internet users of Pakistan. *International Business & Economics Research Journal*, *10*(4), 45-55.

Elbadrawy, R. E., Aziz, R. A. E., & Hamza, M. (2012). Towards an Egyptian mobile banking era. *Computer Technology and Application*, *3*, 765-773.

Bank Negara Malaysia. (2010). *Financial stability and payment system.* Retrieved April 10, 2013, from http://www.bnm.gov.my/files/publication/fsps/en/2010/fs2010_book.pdf

Bank Negara Malaysia. (2012). *Payment statistics*. Retrieved February 18, 2013, from http://www.bnm.gov.my/index.php?ch=ps&pg=ps_stats

Boone, L. E., & Kurtz, D. L. (2012). *Principles of contemporary marketing* (15th ed.). Mason, OH: South-Western Cengage Learning.

Burns, A. C., & Bush, R. F. (2009). *Marketing Research* (6th ed.). Boston, MA: Pearson Prentice Hall.

Cheah, C. M., Teo, A. C., Sim, J. J., Oon, K. H., & Tan, B. I. (2011). Factors affecting Malaysian mobile banking adoption: An empirical analysis. *International Journal of Network and Mobile Technologies*, *2*(3), 149-160.

Chong, A. Y. L., Chan, F. T. S., & Ooi, K. B. (2012). Predicting consumer decision to adopt mobile commerce: Cross country empirical examination between China and Malaysia. *Decision Support Systems, 53,* 34-43.

Coakes, S. J., Steed, L. G., & Ong, C. (2010). *SPSS : analysis without anguish : version 17.0 for windows.* Milton, Qld : Wiley

Colman, A. M., Norris, C. E., & Preston, C. C. (1997). Comparing rating scales of different lengths: Equivalence of scores from 5-point and 7-point scales. *Psychological Reports, 80,* 355-362.

Cramer, D., & Howitt, D. (2004). *The SAGE dictionary of statistics.* SAGE Publications, Ltd.

Cruz, P., Neto, L. B. F., Munoz-Gallego, P., & Laukkanen, T. (2010). Mobile banking rollout in emerging markets: Evidence from Brazil. *International Journal of Bank Marketing, 28*(5), 342 – 371.

Daud, N. M., Kassim, N. E. M., Wan Mohd Said, W. S. R., & Noor, M. M. M. (2011). Determining critical success factors of mobile banking adoption in Malaysia. *Australian Journal of Basic and Applied Sciences, 5*(9), 252-265.

Dawes, J. (2008). Do data characteristics change according to the number of scale points used? *International Journal of Market Research, 50*(1), 61-77.

Demographia. (2013). *Demographia world urban areas (Worlds Agglomerations).* Retrieved February 26, 2013, from http://www.demographia.com/db-worldua.pdf

Department of Statistics, Malaysia. (2010). *Population and housing census of Malaysia 2010.* Retrieved April 2, 2013, from http://www.statistics.gov.my/portal/download_Population/files/census2010/Taburan_Penduduk_dan_Ciri-ciri_Asas_Demografi.pdf

Department of Statistics, Malaysia. (2012). *Population and vital statistics.* Retrieved February 26, 2013, from http://www.statistics.gov.my/portal/download_Buletin_Bulanan/files/BPBM/2012/DEC/05_Population.pdf

Department of Statistics, Malaysia. (2013). *FAQs.* Retrieved February 26, 2013, from http://www.statistics.gov.my/portal/index.php?option=com_content&view=article&id=378&Itemid=75&lang=en

Elbadrawy, R., & Aziz, R. A. (2011). Resistance to mobile banking adoption in Egypt: A cultural perspective. *International Journal of Managing Information Technology*, *3*(4), 9-21.

Fink, A. (2003). *The survey handbook*. CA: Sage.

Gilliam, J. E., Chatterjee, S., & Zhu, D. (2010). Determinants of risk tolerance in the baby boomer cohort. *Journal of Business & Economies Research*, *8*(5), 79-87.

Glasow, P. A. (2005). *Fundamentals of survey research methodology*. Retrieved April 2, 2013, from http://www.mitre.org/work/tech_papers/tech_papers_05/05_0638/05_0638.pdf

Gold, B. (1981). Technological diffusion in industry: Research needs and shortcomings. *The Journal of Industrial Economics*, *29*(3), 247-269.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Upper Saddle River, NJ: Pearson Education.

Hanafizadeh, P., Behboudi, M., Koshksaray, A. A., & Tabar, M. J. S. (2012). Mobile-banking adoption by Iranian bank clients. *Telematics and Informatics*.

Khraim, H. S., Shoubaki, Y. E. A., & Khraim, A. S. (2011). Factors affecting Jordanian consumers' adoption of mobile banking services. *International Journal of Business and Social Science, 2*(20), 96-105.

Kleijnen, M., Lee, N., & Wetzels, M. (2009). An exploration of consumer resistance to innovation and its antecedents. *Journal of Economic Psychology*, *30*, 344-357.

Kuisma, T., Laukkanen, T., & Hiltunen, M. (2007). Mapping the reasons for resistance to internet banking: A means-end approach. *International Journal of Information Management*, *27*(2), 75-85.

Kuo, Y. F., & Yen, S. N. (2009). Towards an understanding of the behavioral intention to use 3G mobile value-added services. *Computers in Human Behavior*, *25*, 103-110.

Laerd Statistics. (2013). *Pearson product-moment correlation*. Retrieved March 25, 2013, from https://statistics.laerd.com/statistical-guides/pearson-correlation-coefficient-statistical-guide.php

Laforet, S., & Li, X., (2005). Consumers' attitudes towards online and mobile banking in China. *The International Journal of Bank Marketing*, *23* (5), 362 – 380.

Laukkanen, P., Sinkkonen, S., & Laukkanen, T. (2008). Consumer resistance to internet banking: Postponers, opponents and rejectors. *The International Journal of Bank Marketing*, *26*(6), 440-455.

Laukkanen, P., Sinkkonen, S., Kivijärvi, M. & Laukkanen, T. (2007a). *Consumer resistance and intention to use internet banking service*. Paper presented at the Proceedings of the EBRF Conference, Finland.

Laukkanen, T., & Kiviniemi, V. (2010). The role of information in mobile banking resistance. *International Journal of Bank Marketing*, *28*(5), 372-388.

Laukkanen, T., Sinkkonen, S., & Laukkanen, P. (2009). Communication strategies to overcome functional and psychological resistance to Internet banking. *International Journal of Information Management, 29*, 111–118.

Laukkanen, T., Sinkkonen, S., Kivijarvi, M., & Laukkanen, P. (2007b). Innovation resistance among mature consumers. *Journal of Consumer Marketing*, *24*(7), 419-427.

Lewis, N. K., Palmer, A., & Moll, A. (2010). Predicting young customers' take up of mobile banking services. *Internation Journal of Bank, 28*(6), 410 – 432.

Lewis-Beck, M. S., Bryman, A., & Liao, T. F. (2004). *The SAGE encyclopedia of social science research methods*. SAGE Publication, Inc.

Lian, J. W., & Yen, D. C. (2013). To buy or nor to buy experience good online: Perspective of innovation adoption barriers. *Computers in Human Behavior, 29,* 665-672.

Lian, J. W., Liu, H. M., & Liu, I. L. (2012). Applying innovation resistance theory to understand user acceptance of online shopping: The moderating effect of different product types. *Computer Technology and Application, 3*, 188-193.

Lim, Y. M., Yap, C. S., & Lee, T. H. (2011). Intention to shop online: A study of Malaysian baby boomers. *African Journal of Business Management*, *5*(5), 1711-1717.

Loo, M. (2010). Attitudes and perceptions towards Islamic banking among Muslims and non-Muslims in Malaysia: Implications for marketing to baby boomers and x-generation. *International Journal of Arts and Sciences, 3*(13), 453-485.

Lu, Y., Yang, S., Chau, P. Y. K., & Cao, Y. (2011). Dynamics between the trust transfer process and intention to use mobile payment services: A cross-environment perspective. *Information & Management, 48*(8), 393-403.

Luarn, P., & Lin, H. H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computers in Human Behavior*, *21*, 873-891.

Luo, X., Li, H., Zhang, J., & Shrim, J. P. (2010). Examining multi-dimensional trust and multi-faceted risk in initial acceptance of emerging technologies: An empirical study of mobile banking services. *Decision Support System*, *49*, 222-234.

Malaysian Communications and Multimedia Commission. (2012a). *Communications & multimedia pocket book of statistics.* Retrieved February 18, 2013, from http://www.skmm.gov.my/skmmgovmy/media/General/pdf/Q4-2012-ENG-250213.pdf

Malaysian Communications and Multimedia Commission. (2012b). *Hand phone users survey 2011*. Retrieved February 25, 2013, from http://www.skmm.gov.my/skmmgovmy/media/General/pdf/SKMM-HANDPHONE-SURVEY-2011.pdf

Malhotra, N. K., & Peterson, M. (2006). *Basic marketing research: A decision-making approach* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Maringka, J. (2012). *5 or 7-point likert scale dilemma*. Retrieved March 17, 2013, from Methodspace Disucssion: http://www.methodspace.com/forum/topics/5-or-7-point-likert-scale-dilemma

McLeod, E. (2009). The use (and disuse) of mobile phones by baby boomers. *International Journal of Emerging Technologies and Society*, *7*(1), 28-38.

Mezick, E. M. (2007). Return on investment: Libraries and student retention. *The Journal of Academic Librarianship, 33*(5), 561-566.

Munusamy, J., Annamalah, S., & Chelliah, S. (2012). Perceived barriers of innovative banking among Malaysian retail banking customers. *Journal of Internet Banking and Commerce*, *17* (1).

Osborne, J. W., & Waters, E. (2002). Four assumptions of multiple regression that researchers should always test. *Practical Assessment, Research & Evaluation*, *8*(2).

Peng, H., Xu, X., & Liu, W. (2011). Drivers and barriers in the acceptance of mobile payment in China. *International Conference on E-Business and E-Government*, 1-4.

Philips, J.A. (2008). *Chapter 4: The normal distribution*. Retrieved February 20, 2013, from http://peoplelearn.homestead.com/MULTIVARIATE/Module4Norm5.html

Pousttchi, K., & Schurig, M. (2004). Assessment of today's mobile banking application from the view of customer requirements. *Proceedings of the 37th Annual Hawaii International Conference on System Sciences.*

Ram, S., & Sheth, J. N. (1989). Consumer resistance to innovations: The marketing problem and its solutions. *The Journal of Consumer Marketing*, *6*(2), 5-14.

Reinders, M. J. (2010). *Managing consumer resistance to innovations.* Amsterdam: Vrije Universiteit.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students* (5th ed.). Harlow, UK: Pearson Education.

Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research methods for business students* (6th ed.). Harlow, UK: Pearson Education.

Sekaran, U., & Bougie, R. (2010). *Research Methods for Business: A skill Building Approach* (5th ed.). New York: John Wiley & Sons Ltd.

Sheth, J. N. (1981). Psychology of innovation resistance: The less developed concept (LDC) in diffusion research. *Research in Marketing*, *4*, 273-282.

Shih, Y. Y., & Fang, K. (2004). The use of a decomposed theory of planned behavior to study internet banking in Taiwan. *Internet Research, 14*(3), 213-223.

Shin, D. H. (2009). Towards an understanding of the consumer acceptance of mobile wallet. *Computers in Human Behavior*, *25*, 1343-1354.

Teo, T., Wong, S. L., & Chai, C. S. (2008). A cross-cultural examination of the intention to use technology between Singaporean and Malaysian pre-service teachers: An application of the Technology Acceptance Model (TAM). *Educational Technology & Society*, *11*(4), 265 – 280.

Trochim, W. M. K. (2006). *Time in Research*. Retrieved March 17, 2013, from Research Methods Knowledge Base: http://www.socialresearchmethods.net/kb/timedim.ph p

Vijayasarathy, L. R. (2004). Predicting consumer intention to use on-line shopping: The case for an augmented technology acceptance model. *Information & Management*, *41*(6), 747–762.

Weil, R. L., Frank, P. B., Hughes, C. W., & Wagner, M. J. (2007). *Litigation services handbook: The role of the financial expert* (4th ed.). Hoboken, New Jersey: John Wiley and Sons Inc.

Wong, C. C., & Hiew, P. L. (2005). Diffusion of mobile entertainment in Malaysia: Drivers and barriers. *Proceedings of World Academy of Science, Engineering and Technology*, *5*, 263-266.

Yang, S., Cao, Y., Mao, W., Zhang, R., & Luo, L. (2011). Determinants of behavioral intention to mobile payment: Evidence from China. *International Conference on Advanced Information Management and Service*, 151-154.

Yu, C. S. (2012). Factors affecting individuals to adopt mobile banking: Empirical evidence from the UTAUT model. *Journal of Electronic Commerce Research*, *13*(2), 104-121.

Zhang, L., Zhu, J., & Liu, Q. (2012). A meta-analysis of mobile commerce adoption and the moderating effect of culture. *Computers in Human Behavior, 28,* 1902-1911.

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2010). *Business research method* (8th ed.). USA: South Western Cengage Learning.

Appendix 2.1: Summary of Past Empirical Studies

Study	Country	Data	Major Findings
Antioco & Kleijnen, 2009	Europe	228 questionnaires from Master's students	Value barrier was negatively related to adoption in both lack and presence of content situation.
Aslam, Khan, Tanveer, & Amber, 2012	Pakistan	520 questionnaires from Internet banking users of 10 selected banks in Pakistan	Perceived value had significantly influenced the Internet banking adoption among mature customers.
Elbadrawy, Aziz, & Hamza, 2012	Egypt	229 questionnaires and interviews from Egypt bank	There was significant relationship between tradition barrier and mobile banking adoption.
Elbadrawy & Aziz, 2011	Alexandria, Cairo	380 questionnaires from local consumers	Image barrier had significant relationship with consumers' resistance towards mobile banking services adoption.
Kuisma, Laukkanen, & Hiltunen, 2007	Finland	Interviewing 30 customers from 20 Finnish banks	Usage barrier has significant effect on customer resistance towards Internet banking adoption.

Kuo & Yen, 2009	Taiwan	269 questionnaire from undergraduate and graduate students of 5 Taiwan universities	Perceived cost had significant negative effect on behavioral intention of using 3G mobile value-added services.
Laukkanen, Sinkkonen & Laukkanen, 2008	Finland	390 postal surveys from customers of Finnish banks and qualitative study	Tradition barrier had significantly affected the adoption of Internet banking.
Laukkanen, Sinkkonen, Kivijarvi, & Laukkanen, 2007a	Finland	390 postal surveys from customers of Finnish banks and qualitative study	Value barrier, tradition barrier, and image barrier had significantly affected bank customers' resistance to Internet banking services.
Laukkanen, Sinkkonen, Kivijarvi, & Laukkanen, 2007b	Finland	1,525 questionnaires from users of Scandinavian bank's online banking services	Usage barriers and value barriers had significant effect on customer resistance towards mobile banking adoption among mature consumers.
Lewis, Palmer, & Moll (2010)	Germany	155 online questionnaires from young people	Perceived costs had insignificant effect towards mobile banking services adoption.
Lian & Yen, 2013	Taiwan	172 questionnaires from SME in cosmetic industry	Tradition barrier had significant relationship with online shopping.

Lian, Liu, & Liu, 2012	Taiwan	178 questionnaires from college students who majored in IS related department	Usage barrier and image barrier had significantly influenced customers' intention to adopt online shopping.
Lu, Yang, Chau, & Cao, 2011	China	961 web-based questionnaires from Internet users	Perceived risk had negatively affected the acceptance of mobile payment.
Luarn & Lin, 2005	Taiwan	180 questionnaires from traditional banking users	Perceived financial cost significantly affects the behavioral intention to use mobile banking.
Luo, Li, Zhang, & Shim, 2010	United States	122 questionnaires from undergraduate students at an Eastern U.S. university	Perceived risk had significant negative effect on behavioral intention of potential users' behavioral intention towards mobile banking services adoption.
Munusamy, Annamalah, & Chelliah, 2012	Malaysia	Internet banking users of selective Malaysia banks	Perceived risk had significant negative relationship with the Internet banking adoption.
Peng, Xu, & Liu, 2011	China	186 questionnaires from university students	There was a negative relationship between perceived risk and mobile payment acceptance.

Shin, 2009	United States	296 web-based questionnaires from users of discussion forums	There was a significant positive relationship between perceived security and user intention for mobile wallet services.
Yang, Cao, Mao, Zhang, & Luo, 2011	China	157 web-based questionnaires from Alipay users	There was significant relationship between perceived financial cost and behavioral intention to mobile payment.
Yu, 2012	Taiwan	441 questionnaires from Taiwanese	There was negative relationship between perceived financial cost and behavioral intention to adopt mobile banking.

Source: Developed for the research

Appendix 3.1: Definitions for Each Variable

Constructs	Definition	Sources
Usage Barrier	The inconvenience and disadvantages of using mobile banking.	Laukkanen, Sinkkonen, Kivijarvi, and Laukkanen, 2007b
Value Barrier	The relative advantage or performance value of a product or service, and the low-to-price compared with its substitutes.	Laukkanen, Sinkkonen, Kivijarvi, and Laukkanen, 2007b; Elbadrawy and Aziz, 2011
Risk Barrier	The degree of uncertainty and potential side effects that may be perceived in innovations.	Laukkanen, Sinkkonen, Kivijarvi, and Laukkanen, 2007b
Tradition Barrier	The difference or conflict between the innovation and the way accustomed by users; the significant effects of an innovation towards users.	Laukkanen, Sinkkonen, Kivijarvi, & Laukkanen, 2007a; Laukkanen, Sinkkonen, Kivijarvi, & Laukkanen, 2007b
Image Barrier	The image of an innovation in general.	Laukkanen, Sinkkonen, Kivijarvi, and Laukkanen, 2007b
Financial Cost Barrier	The extent to which an individual believes that using mobile banking will cost money.	Luarn & Lin, 2005
Intention to Use	The degree of intention of an individual to use	Lian & Yen, 2013

Appendix 3.2: Sources of Variables

Variables	Items	Descriptions	Sources	Measurement
Usage Barrier IV 5 items	UB1	Mobile banking services are difficult to use.	Adapted from Laukkanen, Sinkkonen, Kivijarvi, and Laukkanen (2007b)	Interval
	UB2	Using mobile banking services is inconvenient.		
	UB3	Mobile banking services are slow to use.		
	UB4	Progress in mobile banking services is unclear.		
	UB5	Changing PIN in mobile banking services is inconvenient.		
Value Barrier IV 4 items	VB1	Using mobile banking services is uneconomical.	Adapted from Laukkanen, Sinkkonen, Kivijarvi, and Laukkanen (2007b)	Interval
	VB2	Mobile banking does not offer any advantage when compared to other ways of handling financial matters.		
	VB3	Using mobile banking services do not increase the ability to control financial matters.		
	VB4	Using mobile banking services do not eliminate the constraints of time and space when conducting banking transactions.	Adapted from Elbadrawy and Aziz (2011)	

Risk Barrier IV 5 items	RB1	Using mobile device to pay a bill may make mistakes since the accuracy of information is difficult to check from the screen-sized display of mobile.	Adapted from Laukkanen, Sinkkonen, Kivijarvi, and Laukkanen (2007b)	Interval
	RB2	While using mobile banking services, situation like battery run out or lost connection may occur.		
	RB3	While paying bill through mobile banking service, I might enter wrong information.		
	RB4	The mobile banking account PIN can be lost or stolen during transmission.		
	RB5	While using mobile banking services, there are possibilities for unauthorised third parties to access my account information.		
Tradition Barrier IV 4 items	TB1	Banks are pressuring their customers to use mobile banking services.	Adapted from Laukkanen, Sinkkonen, Kivijarvi, and Laukkanen (2007b)	Interval
	TB2	Bank's customer service is better than customer self service.		
	TB3	Visiting the bank branch and chatting with the teller is a nice occasion on a weekday.	Adapted from Laukkanen, Sinkkonen,	

			Kivijarvi, and Laukkanen (2007a)	
	TB4	Mobile banking services are good alternatives to other banking services (Internet banking, ATM, etc). *		
Image Barrier IV 3 items	IB1	Mobile banking services projected a very negative image.	Adapted from Laukkanen, Sinkkonen, Kivijarvi, and Laukkanen (2007b)	Interval
	IB2	New technology is often too complicated to use.		
	IB3	Mobile banking services are perceived to be difficult to use.		
Financial Cost Barrier IV 4 items	FCB1	The cost of using mobile banking services is higher than other banking service channels.	Adapted from Luarn and Lin (2005)	Interval
	FCB2	The wireless connection fee for mobile banking is expensive.		
	FCB3	Charges on setup mobile device for using mobile banking services is expensive.		
	FCB4	Cost of using mobile banking services is a burden.		

Intention to Use DV 3 items	ITU1	Have no intention to use mobile banking services.	Adapted from Lian and Yen (2013)	Interval
	ITU2	Do not consider to use mobile banking services in the future.		
	ITU3	Have no intention to use mobile banking services in order to increase the convenience.		

* Inverted items

Source: Developed for the research

Appendix 3.3: Permission letter to conduct survey

UNIVERSITI TUNKU ABDUL RAHMAN
Wholly Owned by UTAR Education Foundation (Company No. 578227-M)

3rd May 2013

To Whom It May Concern

Dear Sir/Madam

Permission to Conduct Survey

This is to confirm that the following students are currently pursuing their *Bachelor of Commerce (HONS) Accounting* program at the Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR) Perak Campus.

I would be most grateful if you could assist them by allowing them to conduct their research at your institution. All information collected will be kept confidential and used only for academic purposes.

The students are as follows:

Name of Student	Student ID
NG WEN XUE	11ABB00927
LIM CHIAO CHIN	11ABB01334
LIM XIN CHUEN	11ABB00195
NG SEE NEE	11ABB00767
TAN YING JIE	11ABB01333

If you need further verification, please do not hesitate to contact me.

Thank you.

Yours sincerely

.....
Mr Mahendra Kumar a/l Chelliah
Head of Department,
Faculty of Business and Finance
Email: mahendra@utar.edu.my

.....
Mr Yew King Tak
Supervisor,
Faculty of Business and Finance
Email: yewkt@utar.edu.my

Address: 9, Jalan Bersatu 13/4, 46200 Petaling Jaya, Selangor Darul Ehsan, Malaysia **Postal Address:** P O Box 11384, 50744 Kuala Lumpur, Malaysia
Tel: (603)7958 2628 **Fax:** (603) 7956 1923 **Homepage:** http://www.utar.edu.my

Appendix 3.4: Questionnaire for Pilot Test

Consumer Resistance to Mobile Banking Services: An Empirical Study among Baby Boomers in Malaysia Urban Areas

Survey Questionnaire

The purpose of this survey is to investigate the major barriers of intention to use mobile banking that caused low penetration among baby boomers in Malaysia urban areas. Please answer all questions to the best of your knowledge. All responses are kept strictly confidential.

Thank you for your participation.

Instructions:

1) There are THREE (3) sections in this questionnaire. Please answer ALL questions in ALL sections.
2) Completion of this form will take you approximately 5 minutes.
3) The contents of this questionnaire will be kept strictly confidential.

Section A: Demographic Profile

In this section, we would like to know some of your brief background. Please tick your answer and your answers will be kept strictly confidential.

QA 1: Gender / *Jantina* / 性别：

□ Female / *Perempuan* / 女

□ Male / *Lelaki* / 男

QA 2: Year of Birth / *Tahun Kelahiran* / 出生年份:

□ Before 1946 / *Sebelum 1946* / 1946 之前

□ 1946 – 1964

□ 1965 – 1980

QA 3: Race / *Bangsa* / 种族:

□ Malay / *Melayu* / 马来人

□ Chinese / *Cina* / 华人

□ Indian / *India* / 印度人

□ Others / *Lain-lain* / 其他

QA 4: Marital Status / *Status Perkahwinan* / 婚姻状况：

□ Single / *Bujang* /单身

□ Married / *Kahwin* / 已婚

QA 5: Education Level / *Tahap Pendidikan* / 教育程度:

□ None / *Tiada* / 无

□ Primary School / *Sekolah Rendah* / 小学

□ High School / *Sekolah Menengah* / 中学

□ Diploma / *Diploma* / 文凭

□ Degree / *Ijazah* / 学士

□ Master or above / *Sarjana atau ke atas* / 硕士或以上

QA 6: Income Level (per month) / *Pendapatan Bulanan* / 每月收入:

□ RM1000 or below / *RM1000 atau ke bawah* / RM1000 或以下

□ RM1001 – RM3000

□ RM3001 – RM5000

□ Above RM5000 / *RM5000 ke atas* / RM5000 以上

QA 7: Mobile Banking Service **/** *Perkhidmatan Perbankan Mudah Alih* / 手机银行服务

□ User / *Pengguna* / 用户

□ Non-User / *Bukan Pengguna* / 非用户

Section B: Types of Barrier

This section is seeking your opinion on the importance of different types of barriers. Please circle one number per line to indicate the extent to which you agree or disagree with the following statements.

1 = Strongly Disagree / *Sangat Tidak Setuju* / 非常不同意
2 = Disagree / *Tidak Setuju* / 不同意
3 = Neutral / *Sederhana* / 中立
4 = Agree / *Setuju* / 同意
5 = Strongly Agree / *Sangat Setuju* / 非常同意

No	Questions / *Soalan* / 问题	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
B1	Usage Barrier / *Halangan Penggunaan* / 使用障碍					
UB1	Mobile banking services are difficult to use. *Perkhidmatan perbankan mudah alih adalah susah digunakan.* 手机银行服务是复杂难用的。	1	2	3	4	5
UB2	Using mobile banking services is inconvenient. *Penggunaan perkhidmatan perbankan mudah alih akan menimbulkan kesulitan.* 手机银行服务不方便使用。	1	2	3	4	5
UB3	Mobile banking services are slow to use. *Perkhidmatan perbankan mudah alih adalah perlahan untuk digunakan.* 手机银行服务无法快速使用。	1	2	3	4	5
UB4	Progress in mobile banking services is unclear. *Proses perkhidmatan perbankan mudah alih adalah tidak jelas.* 手机银行服务的使用流程不清晰。	1	2	3	4	5
UB5	Changing PIN in mobile banking services is inconvenient. *Pertukaran kod PIN perkhidmatan perbankan mudah alih akan menimbulkan kesulitan.* 手机银行服务的PIN码不方便更换。	1	2	3	4	5

No	Questions / *Soalan* /问题	Strongly Disagre	Disagre	Neutral	Agree	Strongly Agree
B2	Value Barrier / *Halangan dari segi Nilai* / 价值障碍					
VB1	Using mobile banking services is uneconomical. *Penggunaan perkhidmatan perbankan mudah alih adalah tidak ekonomi.* 手机银行服务是不经济的。	1	2	3	4	5
VB2	Mobile banking does not offer any advantage when compared to other ways of handling financial matters. *Perkhidmatan perbankan mudah alih tidak memberi sebarang faedah berbanding dengan cara pengurusan urusan kewangan yang lain.* 相对于其他处理财务事项的方法，手机银行服务并没有优势。	1	2	3	4	5
VB3	Using mobile banking services do not increase the ability to control financial matters. *Penggunaan perkhidmatan perbankan mudah alih tidak meningkatkan keupayaan untuk mengawal urusan kewangan.* 使用手机银行服务无法提升个人财务的掌管能力。	1	2	3	4	5
VB4	Using mobile banking services do not eliminate the constraints of time and space when conducting banking transactions. *Menggunakan perkhidmatan perbankan mudah alih tidak akan menyingkirkan kekangan masa dan ruang ketika menjalankan transaksi perbankan.* 使用手机银行服务以进行银行交易无法消除时间与空间的局限。	1	2	3	4	5

No	Questions / *Soalan* / 问题	Strongly Disagre	Disagre	Neutral	Agree	Strongly Agree
B3	Risk Barrier / *Halangan Risiko* / 风险障碍					
RB1	Using mobile device to pay a bill may make mistakes since the accuracy of information is difficult to check from the screen-sized display of mobile. *Kesilapan mungkin berlaku apabila menggunakan peranti mudah alih untuk membayar bil kerana ketepatan maklumat susah untuk diperiksa dari paparan skrin telefon bimbit.* 使用移动设备缴付账单可能出错，因为透过手机荧幕的显示，资料的准确性难以查证。	1	2	3	4	5
RB2	While using mobile banking services, situation like battery run out or lost connection may occur. *Ketika menggunakan perkhidmatan perbankan mudah alih, situasi seperti kehabisan bateri atau putus sambungan internet mungkin berlaku.* 使用手机银行服务时，将会发生电池耗尽或网络断线的情况。	1	2	3	4	5
RB3	While paying bill through mobile banking service, I might enter wrong information. *Ketika menggunakan perkhidmatan perbankan mudah alih untuk membayar bil, saya mungkin memasukkan maklumat yang silap.* 使用手机银行服务缴付账单时，我可能输入错误的资料。	1	2	3	4	5
RB4	The mobile banking account PIN can be lost or stolen during transmission. *PIN akaun perbankan mudah alih akan hilang atau dicuri ketika transmisi.* 手机银行户口的 PIN 码将会在传送过程中遗失或被偷。	1	2	3	4	5

RB5	While using mobile banking services, there are possibilities for unauthorised third parties to access my account information. *Ketika menggunakan perkhidmatan perbankan mudah alih, pihak ketiga yang tidak berkuasa mungkin mengakses maklumat akaun saya.* 使用手机银行服务时，未授权第三者有可能获取我的户口资料。	1	2	3	4	5

No	Questions / *Soalan* / 问题	Strongly Disagre	Disagre	Neutral	Agree	Strongly Agree
B4	Tradition Barrier / *Halangan Tradisi* / *传统障碍*					
TB1	Banks are pressuring their customers to use mobile banking services. *Pihak bank menekankan pelanggan supaya menukar kepada perkhidmatan perbankan mudah alih.* 许多银行正迫切地要求顾客转换至手机银行服务。	1	2	3	4	5
TB2	Bank's customer service is better than customer self service. *Perkhidmatan pelanggan bank adalah lebih selesa berbanding dengan perkhidmatan layan diri.* 银行的客户服务比自助服务更好。	1	2	3	4	5
TB3	Visiting the bank branch and chatting with the teller is a nice occasion on a weekday. *Waktu yang baik untuk mengunjungi bank dan berbual-bual dengan juruwang pada hari minggu.* 在工作日里到银行与出纳员谈话是美好的时刻。	1	2	3	4	5

TB4	Mobile banking services are good alternatives to other banking services (Internet banking, ATM, etc). *Perkhidmatan perbankan mudah alih menawarkan pilihan yang lebih baik berbanding dengan perkhidmatan perbankan lain.* 相对于其他银行服务，手机银行服务是更好的选择。	1	2	3	4	5

No	Questions / *Soalan* / 问题	Strongly Disagre	Disagre	Neutral	Agree	Strongly Agree
B5	Image Barrier / *Halangan Imej* / 印象障碍					
IB1	Mobile banking services projected a very negative image. *Perkhidmatan perbankan mudah alih memberi imej negatif.* 手机银行服务具有极负面的形象。	1	2	3	4	5
IB2	New technology is often too complicated to use. *Teknologi baru selalu rumit untuk digunakan.* 新科技通常都很复杂难用。	1	2	3	4	5
IB3	Mobile banking services are perceived to be difficult to use. *Tanggapan perkhidmatan perbankan mudah alih amat susah untuk digunakan.* 手机银行服务让人觉得难以使用。	1	2	3	4	5

No	Questions / *Soalan* / 问题	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
B6	Financial Cost Barrier / *Halangan Kos* / 成本障碍					
FCB1	The cost of using mobile banking services is higher than other banking service channels. *Kos penggunaan perkhidmatan perbankan mudah alih lebih tinggi daripada saluran perbankan lain.* 使用手机银行服务比其他银行服务管道所需的花费更高。	1	2	3	4	5
FCB2	The wireless connection fee for mobile banking is expensive. *Kos pautan tanpa wayar adalah mahal ketika menggunakan perkhidmatan perbankan mudah alih.* 使用手机银行服务所需的无线上网收费很昂贵。	1	2	3	4	5
FCB3	Charges on setup mobile device for using mobile banking services is expensive. *Persediaan peranti mudah alih untuk menggunakan perkhidmatan perbankan mudah alih akan dikenakan caj yang tinggi.* 使用手机银行服务时所需的移动设备装置很昂贵。	1	2	3	4	5
FCB4	Cost of using mobile banking services is a burden. *Penggunaan perkhidmatan perbankan mudah alih adalah satu bebanan.* 使用手机银行服务的花费是一种负担。	1	2	3	4	5

Section C: Intention to Use

This section is seeking your opinion on the intention to use with the types of barriers. Please circle one number per line to indicate the extent to which you agree or disagree with the following statements.

1 = Strongly Disagree / *Sangat Tidak Setuju* / 非常不同意
2 = Disagree / *Tidak Setuju* / 不同意
3 = Neutral / *Sederhana* / 中立
4 = Agree / *Setuju* / 同意
5 = Strongly Agree / *Sangat Setuju* / 非常同意

No	Questions / *Soalan* / 问题	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
C1	Intention to Use / *Niat Penggunaan* / 使用意愿					
ITU1	Have no intention to use mobile banking services. *Berniat untuk menggunakan perkhidmatan perbankan mudah alih.* 有意愿使用手机银行服务。	1	2	3	4	5
ITU2	Do not consider to use mobile banking services in the future. *Akan menggunakan perkhidmatan perbankan mudah alih pada masa kelak.* 考虑在未来使用手机银行服务。	1	2	3	4	5
ITU3	Have no intention to use mobile banking services in order to increase the convenience. *Berniat untuk menggunakan perkhidmatan perbankan mudah alih untuk meningkatkan kemudahan.* 有意愿使用手机银行服务以增加便利。	1	2	3	4	5

Appendix 3.5: Revised Questionnaire

Consumer Resistance to Mobile Banking Services: An Empirical Study among Baby Boomers in Malaysia Urban Areas

Survey Questionnaire

The purpose of this survey is to investigate the major barriers of intention to use mobile banking that caused low penetration among baby boomers in Malaysia urban areas. Please answer all questions to the best of your knowledge. All responses are kept strictly confidential.

Thank you for your participation.

Instructions:

1) There are THREE (3) sections in this questionnaire. Please answer ALL questions in ALL sections.
2) Completion of this form will take you approximately 5 minutes.
3) The contents of this questionnaire will be kept strictly confidential.

Section A: Demographic Profile

In this section, we would like to know some of your brief background. Please tick your answer and your answers will be kept strictly confidential.

QA 1: Gender / *Jantina* / 性别：

□ Female / *Perempuan* / 女

□ Male / *Lelaki* / 男

QA 2: Year of Birth / *Tahun Kelahiran* / 出生年份:

□ Before 1946 / *Sebelum 1946* / 1946 之前

□ 1946 – 1964

□ 1965 – 1980

QA 3: Race / *Bangsa* / 种族:

□ Malay / *Melayu* / 马来人

□ Chinese / *Cina* / 华人

□ Indian / *India* / 印度人

□ Others / *Lain-lain* / 其他

QA 4: Marital Status / *Status Perkahwinan* / 婚姻状况：

□ Single / *Bujang* /单身

□ Married / *Kahwin* / 已婚

QA 5: Education Level / *Tahap Pendidikan* / 教育程度:

□ None / *Tiada* / 无

□ Primary School / *Sekolah Rendah* / 小学

□ High School / *Sekolah Menengah* / 中学

□ Diploma / *Diploma* / 文凭

□ Degree / *Ijazah* / 学士

□ Master or above / *Sarjana atau ke atas* / 硕士或以上

QA 6: Income Level (per month) / *Pendapatan Bulanan* / 每月收入:

□ RM1000 or below / *RM1000 atau ke bawah* / RM1000 或以下

□ RM1001 – RM3000

□ RM3001 – RM5000

□ Above RM5000 / *RM5000 ke atas* / RM5000 以上

QA 7: Mobile Banking Service **/** *Perkhidmatan Perbankan Mudah Alih* / 手机银行服务

□ User / *Pengguna* / 用户

□ Non-User / *Bukan Pengguna* / 非用户

Section B: Types of Barrier

This section is seeking your opinion on the importance of different types of barriers. Please circle one number per line to indicate the extent to which you agree or disagree with the following statements.

1 = Strongly Disagree / *Sangat Tidak Setuju* / 非常不同意
2 = Disagree / *Tidak Setuju* / 不同意
3 = Neutral / *Sederhana* / 中立
4 = Agree / *Setuju* / 同意
5 = Strongly Agree / *Sangat Setuju* / 非常同意

No	Questions / *Soalan* / 问题	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
B1	Usage Barrier / *Halangan Penggunaan* / 使用障碍					
UB1	Mobile banking services are difficult to use. *Perkhidmatan perbankan mudah alih adalah susah digunakan.* 手机银行服务是复杂难用的。	1	2	3	4	5
UB2	Using mobile banking services is inconvenient. *Penggunaan perkhidmatan perbankan mudah alih akan menimbulkan kesulitan.* 手机银行服务不方便使用。	1	2	3	4	5
UB3	Mobile banking services are slow to use. *Perkhidmatan perbankan mudah alih adalah perlahan untuk digunakan.* 手机银行服务无法快速使用。	1	2	3	4	5
UB4	Progress in mobile banking services is unclear. *Proses perkhidmatan perbankan mudah alih adalah tidak jelas.* 手机银行服务的使用流程不清晰。	1	2	3	4	5
UB5	Changing PIN in mobile banking services is inconvenient. *Pertukaran kod PIN perkhidmatan perbankan mudah alih akan menimbulkan kesulitan.* 手机银行服务的PIN码不方便更换。	1	2	3	4	5

No	Questions / *Soalan* /问题	Strongly Disagre	Disagre	Neutral	Agree	Strongly Agree
B2	Value Barrier / *Halangan dari segi Nilai* / 价值障碍					
VB1	Using mobile banking services is uneconomical. *Penggunaan perkhidmatan perbankan mudah alih adalah tidak ekonomi.* 手机银行服务是不经济的。	1	2	3	4	5
VB2	Mobile banking does not offer any advantage when compared to other ways of handling financial matters. *Perkhidmatan perbankan mudah alih tidak memberi sebarang faedah berbanding dengan cara pengurusan urusan kewangan yang lain.* 相对于其他处理财务事项的方法，手机银行服务并没有优势。	1	2	3	4	5
VB3	Using mobile banking services do not increase the ability to control financial matters. *Penggunaan perkhidmatan perbankan mudah alih tidak meningkatkan keupayaan untuk mengawal urusan kewangan.* 使用手机银行服务无法提升个人财务的掌管能力。	1	2	3	4	5
VB4	Using mobile banking services do not eliminate the constraints of time and space when conducting banking transactions. *Menggunakan perkhidmatan perbankan mudah alih tidak akan menyingkirkan kekangan masa dan ruang ketika menjalankan transaksi perbankan.* 使用手机银行服务以进行银行交易无法消除时间与空间的局限。	1	2	3	4	5

No	Questions / *Soalan* / 问题	Strongly Disagre	Disagre	Neutral	Agree	Strongly Agree
B3	Risk Barrier / *Halangan Risiko* / 风险障碍					
RB1	Using mobile device to pay a bill may make mistakes since the accuracy of information is difficult to check from the screen-sized display of mobile. *Kesilapan mungkin berlaku apabila menggunakan peranti mudah alih untuk membayar bil kerana ketepatan maklumat susah untuk diperiksa dari paparan skrin telefon bimbit.* 使用移动设备缴付账单可能出错，因为透过手机荧幕的显示，资料的准确性难以查证。	1	2	3	4	5
RB2	While using mobile banking services, situation like battery run out or lost connection may occur. *Ketika menggunakan perkhidmatan perbankan mudah alih, situasi seperti kehabisan bateri atau putus sambungan internet mungkin berlaku.* 使用手机银行服务时，将会发生电池耗尽或网络断线的情况。	1	2	3	4	5
RB3	While paying bill through mobile banking service, I might enter wrong information. *Ketika menggunakan perkhidmatan perbankan mudah alih untuk membayar bil, saya mungkin memasukkan maklumat yang silap.* 使用手机银行服务缴付账单时，我可能输入错误的资料。	1	2	3	4	5
RB4	The mobile banking account PIN can be lost or stolen during transmission. *PIN akaun perbankan mudah alih akan hilang atau dicuri ketika transmisi.* 手机银行户口的 PIN 码将会在传送过程中遗失或被偷。	1	2	3	4	5

RB5	While using mobile banking services, there are possibilities for unauthorised third parties to access my account information. *Ketika menggunakan perkhidmatan perbankan mudah alih, pihak ketiga yang tidak berkuasa mungkin mengakses maklumat akaun saya.* 使用手机银行服务时，未授权第三者有可能获取我的户口资料。	1	2	3	4	5

No	Questions / *Soalan* / 问题	Strongly Disagre	Disagre	Neutral	Agree	Strongly Agree
B4	Image Barrier / *Halangan Imej* / 印象障碍					
IB1	Mobile banking services projected a very negative image. *Perkhidmatan perbankan mudah alih memberi imej negatif.* 手机银行服务具有极负面的形象。	1	2	3	4	5
IB2	New technology is often too complicated to use. *Teknologi baru selalu rumit untuk digunakan.* 新科技通常都很复杂难用。	1	2	3	4	5
IB3	Mobile banking services are perceived to be difficult to use. *Tanggapan perkhidmatan perbankan mudah alih amat susah untuk digunakan.* 手机银行服务让人觉得难以使用。	1	2	3	4	5

No	Questions / *Soalan* / 问题	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
B5	Financial Cost Barrier / *Halangan Kos* / 成本障碍					
FCB1	The cost of using mobile banking services is higher than other banking service channels. *Kos penggunaan perkhidmatan perbankan mudah alih lebih tinggi daripada saluran perbankan lain.* 使用手机银行服务比其他银行服务管道所需的花费更高。	1	2	3	4	5
FCB2	The wireless connection fee for mobile banking is expensive. *Kos pautan tanpa wayar adalah mahal ketika menggunakan perkhidmatan perbankan mudah alih.* 使用手机银行服务所需的无线上网收费很昂贵。	1	2	3	4	5
FCB3	Charges on setup mobile device for using mobile banking services is expensive. *Persediaan peranti mudah alih untuk menggunakan perkhidmatan perbankan mudah alih akan dikenakan caj yang tinggi.* 使用手机银行服务时所需的移动设备装置很昂贵。	1	2	3	4	5
FCB4	Cost of using mobile banking services is a burden. *Penggunaan perkhidmatan perbankan mudah alih adalah satu bebanan.* 使用手机银行服务的花费是一种负担。	1	2	3	4	5

Section C: Intention to Use

This section is seeking your opinion on the intention to use with the types of barriers. Please circle one number per line to indicate the extent to which you agree or disagree with the following statements.

1 = Strongly Disagree / *Sangat Tidak Setuju* / 非常不同意
2 = Disagree / *Tidak Setuju* / 不同意
3 = Neutral / *Sederhana* / 中立
4 = Agree / *Setuju* / 同意
5 = Strongly Agree / *Sangat Setuju* / 非常同意

No	Questions / *Soalan* / 问题	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
C1	Intention to Use / *Niat Penggunaan* / 使用意愿					
ITU1	Have no intention to use mobile banking services. *Berniat untuk menggunakan perkhidmatan perbankan mudah alih.* 有意愿使用手机银行服务。	1	2	3	4	5
ITU2	Do not consider to use mobile banking services in the future. *Akan menggunakan perkhidmatan perbankan mudah alih pada masa kelak.* 考虑在未来使用手机银行服务。	1	2	3	4	5
ITU3	Have no intention to use mobile banking services in order to increase the convenience. *Berniat untuk menggunakan perkhidmatan perbankan mudah alih untuk meningkatkan kemudahan.* 有意愿使用手机银行服务以增加便利。	1	2	3	4	5